



# ECHO IRELAND

Journal of the  
Irish Radio Transmitters Society

February 2012

**CQRR**  
World Wide Contest  
Celebrating  
IRTS 80th  
Anniversary  
**St Patrick's Day**  
**17th March 2012**  
12:00 UTC  
[www.irts.ie](http://www.irts.ie)

**Irish Radio Transmitters Society**  
**80th Annual General Meeting - Annual Dinner & Rally**  
**at The Fairways Hotel, Dundalk - April 21/22nd 2012**

## Society Officers 2011/2012

President:	Paul Martin EI2CA	087-2523908	<i>paul@comma.ie</i>
Vice President:	Seamus McCague EI8BP	01-2988045	<i>smccague@eircom.net</i>
Hon. Vice-Presidents:	Sean Nolan EI7CD	01-2851599	<i>ei7cd@gofree.indigo.ie</i>
	Dave Moore EI4BZ	087-6290574	<i>ei4bz@eircom.net</i>
Auditors:	Brendan De hÓra, EI3GV; Brendan Lynch, EI6GA		
Secretary:	Ger McNamara EI4GXB	087-2532512	<i>ei4gxb@gmail.com</i>
Treasurer:	Sean Donelan EI4GK	01-2821420	<i>donelansean@gmail.com</i>
P.R.O.:	Seamus McCague EI8BP	01-2988045	<i>smccague@eircom.net</i>
AREN Co-Ordinator:	John Ronan EI7IG	086 8167310	<i>ei7ig@aren.ie</i>
Awards Committee:	Peter Grant EI4HX (Chair)	087-7944779	<i>ei4hxpperimental@eircom.net</i>
	Pat Fitzpatrick EI2HX, Jim Holohan EI4HH.		
ComReg Liaison:	Sean Nolan EI7CD	01-2851599	<i>ei7cd@gofree.indigo.ie</i>
Contest Manager:	Thos Caffrey EI2JD	087-2953256	<i>thoscaffrey@hotmail.com</i>
EMC:	Brendan Minish EI6IZ	086-2501832	<i>ei6iz.Brendan@gmail.com</i>
Gaeilge:	Pádraig Ó Meachair EI7GK	0404-67658	<i>ei7gk@esatclear.ie</i>
External Awards/WEIC:	Sean Nolan, EI7CD	01-2851599	<i>ei7cd@gofree.indigo.ie</i>
IARU:	Sean Nolan, EI7CD	01-2851599	<i>ei7cd@gofree.indigo.ie</i>
IARUMS:	Ger McNamara EI4GXB	087-2532512	<i>ei4gxb@gmail.co</i>
IRTS Shop:	Peter Grant EI4HX	087-7944779	<i>ei4hxpperimental@eircom.net</i>
Licence Examination:	Sean Nolan EI7CD	01-2851599	<i>ei7cd@gofree.indigo.ie</i>
	(Sub-Committee Chairman)		
Membership Officer:	Joe Ryan EI7GY	01-2854250	<i>memrecords@irts.ie</i>
Morse Testing Co-Ord.:	Sean Donelan EI4GK	01-2821420	<i>donelansean@gmail.com</i>
Chief Morse Tester:	Dan Lloyd EI3AE	01-8382774	<i>daniellloyd@eircom.net.</i>
P.O. Box 462:	Michael McNamara EI2CL	01-8372493	<i>ei2clmike@eircom.net</i>
Publications Editor:	Dave Moore EI4BZ	087-6290574	<i>ei4bz@eircom.net</i>
Publications Distribution	Sean Donelan EI4GK	01-2821420	<i>donelansean@gmail.com</i>
Radio News Editor:	Aidan Noone	085-7100511	<i>newsteam@irts.ie</i>
Repeater Co-ordinator:	John McCarthy EI8JA	087-9437500	<i>ei8ja@eircom.net</i>
VHF Manager:	Trevor Dunne EI2GLB	087-2217829	<i>ei2glb@hotmail.com</i>
WAI Awards Manager:	Tom Rea EI2GP	093-35523	<i>tomrea@eircom.net</i>
WAI Book Sales:	Dave Moore EI4BZ	087-6290574	<i>ei4bz@eircom.net</i>
Website Editor:	Seamus McCague EI8BP	01-2988045	<i>smccague@eircom.net</i>
Website Designer.:	Gerry Kavanagh EI8DRB	087-7996336	<i>pagemaster@irts.ie</i>

## QSL Bureau

QSL Inwards Manager:	Pat Fitzpatrick EI2HX.	087-6300110	<i>patfitzpatrick@hotmail.com</i>
QSL Outwards Manager:	Tony Baldwin EI8JK		<i>ei8jk@amsat.org</i>
Incoming QSL Sub Managers:			
0/1/Calls & SWL:	John Browne EI7FAB.		
2 Series Calls:	Thos Caffrey EI2JD	087-2953256	<i>thoscaffrey@hotmail.com</i>
3 Series Calls:	Pat Fitzpatrick EI2HX.	087-6300110	<i>patfitzpatrick@hotmail.com</i>
4 Series Calls:	Jim Ryan EI3DP	021-4632365	<i>pamasada11@yahoo.ie</i>
5 Series Calls:	Terry Webb EI4GLB	087-6199943	<i>terencewebb@hotmail.com</i>
6 Series Calls:	Rory Hinchy EI4DJB		<i>rhinchy@iee.org</i>
7 Series Calls:	Roland Byrne EI4GYB		<i>rolandbyrne@ireland.com</i>
8 Series Calls:	Brian Canning EI8IU	086-2514822	<i>brianei8iu@eircom.net</i>
9 Series Calls:	Dave Deane EI9FBB	087-744777	<i>ei9fbb@gmail.com</i>

## News Bulletins and Readers

<b>Sunday</b>				
Dublin	1100	7.055	SSB	Sean EI7CD, Roland EI4GYB, Ger EI4GXB Francis EI5GOB, George EI7GKB (as Gaeilge) Paddy EI7GK, Danny EI6GS
Wicklow	1130	3.680	SSB	Tony EI5EM, John EI7JG, Frank EI6EF, Liam EI3HK
Dublin	1145	145.525	FM	As 1100
Dublin	1200	3.650	SSB	
Mayo	2000	145.600 - 433.450	FM	70.375 - 50.450
			FM	John EI7IQ, Padraic EI9JA, Jimmy EI2GCB
Tipperary	2030	145.450	FM	Tommy EI2IT, John EI2JB, Andy EI5JF, Eddie EI3FFB
<b>Monday</b>				
Cork	2000	145.750	FM	Vincent EI7HN
Limerick	2000	145.725	FM	Brian EI9AL, Simon EI7ALB, Gerry EI3JU, Ger EI4GXB
Louth	2000	145.675	FM	Peter EI4HX, Thos EI2JD
<b>Tuesday</b>				
Waterford	2130	145.650	FM	Francis EI5GOB
North Cork	2000	430.925	FM	Lisa EI9GSB

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## When is my membership due for renewal?

Your membership renewal date is shown on the wrapper in which the newsletter is posted – above the name and address. For those who receive Echo Ireland by electronic distribution, the renewal date is included in the email alert sent when a new issue is published. Members who pay by direct debit will see “(DD)” after the renewal date.

Use **[www.irts.ie/renew](http://www.irts.ie/renew)** to renew your membership at any time; you can also renew at a Rally, or by sending your annual subscription directly to the IRTS Treasurer.

Please renew early to keep our postage and other costs down. Membership is extended by 12 months from the normal renewal date whenever a payment is received.

**Joe Ryan, Membership Records Officer**  
**[memrecords@irts.ie](mailto:memrecords@irts.ie)**



## Gerry Butler EI0CH Silent Key

We are sad to announce the death of Gerry Butler EI0CH.

Gerry was an engineer, with a PhD in audio and acoustics. In the 1990s he worked as a Senior Research Officer in Trinity College Dublin, where he was involved in mobile and wireless communications projects.

In 2003 he moved to Enterprise Ireland.

Gerry was a member of the An Óige Mountain Rescue Team before becoming a founder member of the Dublin & Wicklow Mountain Rescue Team. His passion was mountaineering and anything to do with the mountains, and this led him into the world of Mountain Rescue.

He used his professional and amateur interest in radio communications to help with the development of sophisticated radio communications systems for mountain rescue teams.

As well as this he involved many other radio amateurs in helping to provide emergency radio cover for the "Lug Walk" and "Circuit of Imaal" long distance walks.

He served as a committee member of the IRTS from 1990 to 1993.

Ar dheis Dé go raibh a anam.



**IRTS Committee Meeting**  
**Saturday March 10th**  
**1100**  
**Maldron Hotel,**  
**Portlaoise**

## Nominations For Awards for IRTS Trophies.

The time is here again for nominations for the several awards for IRTS Trophies that are required from within the membership.

This includes the awards for:

1. Service to the Society or to Amateur Radio. Awards in this category can be to members or non-members.
2. Awards for other achievements. Awards in this category include the 4 and 6 Meter Shields, the SWL Award, and the awards for Quality Construction Projects. These are confined to members only.

When considering your nominations, please refer to previous successful winners as included in [www.irts.ie/cgi/awards.cgi](http://www.irts.ie/cgi/awards.cgi)

Nominations may be from clubs or individuals, must be by post or e-mail, and can be forwarded to the awards committee members, Pat EI2HX and Jim EI4HH, or to Peter Grant EI4HX, Chair of Awards Committee, QTHR, or by e-mail to [ei4hxperimental@eircom.net](mailto:ei4hxperimental@eircom.net)

Closing date for nominations is 29th February 2012.

## Ronald McCrea GI3WBR/EI4T Silent Key

An exemplary experimenter from the early days of amateur radio in Ireland passed away in late October past.

The late Ron McCrea EI4T & GI3WBR had lived a long and fruitful life around the Donegal and Fermanagh border town of Pettigo.

Cliff Corderoy GI4CZW has many memories of yarns with Gordon. Both were founder members of Lough Erne Amateur Club in 1979.

Cliff was licensed in 1974 and ran RAE courses for many early LEARC members from 1976 in Enniskillen Tech. College.

Ron, licensed decades earlier, EI4T then GI3WBR, was the only man Cliff knew who had two call signs without having to do the RAE. Nor did he do a test to get his road driving license.

Gordon's boyhood home was beside Pettigo station's shunting yard. He was the only man Cliff knew, who learnt to drive a steam train in his school days. Later, he was involved with many things, from pre-mains electric distribution (possibly DC from the water mill in Pettigo), running the family undertakers and establishing Kesh Electrics with his son Gordon, a major pioneer in satellite broadcasting technology.

Ron was active on HF DX and local 2 metres, often with another well known innovative experimenter in Ireland's North West, Willie Long EI6AI in south Donegal.

May he rest in peace.



Photo: GI4CZW

## Online Access to Echo Ireland

If you would like to have online access to the complete library of Echo Ireland issues from 2001 onwards and receive new issues of Echo Ireland by way of electronic download instead of in hard copy, please advise the Membership Records Officer.

Include your call sign and email address in the request and send it to: [memrecords@irts.ie](mailto:memrecords@irts.ie)

# EI80IRTS Award

The Irish Radio Transmitters Society was founded in 1932 and we are proud to celebrate our 80th anniversary in 2012. As part of the celebrations the Society will be using the special call-sign EI80IRTS.

A special certificate, available to all amateurs and SWLs, is being offered to celebrate this wonderful occasion. Contact the special callsign EI80IRTS during the period of January 1st 2012 to December 31st 2012.

## Requirements

2-way communication on Phone, CW or Digi modes on the HF (1.8-28) and VHF (50-1200MHz) bands.

Cross band QSO's will not be accepted for this award.

Contacts made via active earthbound reflectors, repeaters and EchoLink will not be counted.

The certificate is available in three levels:

- Bronze Award 3 different bands.
- Silver Award 5 different bands.
- Gold Award 8 different bands.

## Applicants

Applicants should submit a list showing the date and time you worked or heard EI80IRTS, plus frequency and mode. QSL cards are not required.

The declared QSO's will be cross-checked for validity based on the logs of EI80IRTS.

The application fee is €5.00 or US \$7.00

Send applications to Award Manager:

Thos Caffrey,  
The Slip,  
Clogherhead,  
Co. Louth,  
Ireland.

At the same time, please send an e-mail to [contestmanager@irts.ie](mailto:contestmanager@irts.ie) to inform him that you sent your application by mail.

The award is sponsored by the Dundalk Amateur Radio Society.

## New Examination Agreement Signed



### Signing Examination Contract

IRTS President Paul Martin EI2CA and IRTS ComReg Liaison Officer Sean Nolan EI7CD signing the contract for the theory examination.

Under the ITU Radio Regulations and the CEPT Agreements all radio amateurs must have obtained operational and technical qualifications which are satisfactory for the issue of an amateur licence. In the case of countries, such as Ireland, that have adopted CEPT Recommendation T/R 61-02 the appropriate qualification is the Harmonised Amateur Radio Examination Certificate (HAREC).

The responsibility for ensuring that applicants are qualified prior to the granting of an amateur licence rests with ComReg and is specifically stated in Regulation 5(3) of the Wireless Telegraphy (Amateur Station Licence) Regulations 2009 (SI No. 192 of 2009) as it was in the previous Experimenter Regulations.

In furtherance of this responsibility, ComReg in May, 2005 entered into a three year agreement with the IRTS under which the Society became responsible for setting, organising and correcting the examination for the HAREC.

This agreement was renewed for a further three years in 2008 and expired in October last. A new agreement has now been put in place and will run for a five year period up to December 2016.

The extension of the agreement to five years is recognition of the success of the co-operative arrangement between ComReg and IRTS in relation to the examination.

We are pleased that proposals put forward by IRTS on the format of the examination in the course of our consultations on the renewal of the agreement were approved by ComReg.

Effective from 1 January 2012 the examination will consist of two main sections each containing 30 multiple choice questions. The pass mark is 60% and a pass is required in each of the two main sections of the paper.

Further details of the revised examination format can be found on page 5 in this issue.



**Irish Radio Transmitters Society**

*Celebrating 80 Years + 1932 - 2012*  
**Amateur Radio in Ireland**





# HAREC – Revised Examination Format

In June 2010 we announced that ComReg had approved a revised syllabus for the Harmonised Amateur Radio Examination Certificate (HAREC) examination, to be effective from 1 January 2011 onwards.

Holders of the HAREC qualification are entitled to apply for an Amateur Station Licence.

Following recent consultations with ComReg on the renewal of the agreement under which IRTS administer the examinations for the HAREC qualification, we are pleased to announce that ComReg has approved a change in the format of the examination, effective from 1 January 2012: it now consists of two sections, each containing 30 questions.

The pass mark is 60% and a pass is required in each of the two main sections of the paper, Section A and Section B.

The topics covered in the paper are as follows:

## Section A – (30 Questions) : Pass Mark 60% Amateur Radio Regulations and Related Topics

Topics	Questions
A.1 Licensing Conditions	9
A.2 Operating Rules and Procedures	10
A.3 Electromagnetic Compatibility and Transmitter Interference	7
A.4 Safety	4

## Section B – (30 Questions) : Pass Mark 60% Amateur Radio Theory and Related Topics

Topics	Questions
B.1 Electrical & Electronic Principles including Components and Circuits	8
B.2 Transmitters and Receivers	6
B.3 Feeders and Antennas	7
B.4 Propagation	6
B.5 Measurements	3

There have been no significant changes to the content of the Syllabus and Notes for Candidates which was published in June 2010, however its layout has been adjusted to conform to the revised structure shown above.

In addition, a new Annex has been included containing the principal national call sign prefixes for Europe and North America, knowledge of which is required for the examination.

Intending candidates are advised to study the Syllabus carefully paying particular attention to the associated Notes for Candidates and the Annexes to the Syllabus. The web page at [www.irts.ie/downloads](http://www.irts.ie/downloads) contains a link to the syllabus with the adjusted layout.

This page also includes a link to an IRTS document **Studying for the Harmonised Amateur Radio Examination Certificate** which includes both the syllabus and a new Sample Paper.

A revised CD Course Guide, which is closely aligned with the Syllabus topics and the revised examination format, is now available.

# New VHF - UHF Band Plan

Band Plans for amateur radio frequencies are revised from time to time following international consultations with users and special interest groups.

The new Region 1 Band Plan for VHF and UHF frequencies came into effect on 1st January this year.

The biggest changes are in the 6 metre band - with new beacon sub-bands and a number of new "centre of activity" frequency allocations.

The revision in the 6 metre band plan is designed to give more bandwidth to CW and SSB users, while recognising increased activity levels in the new digital modes.

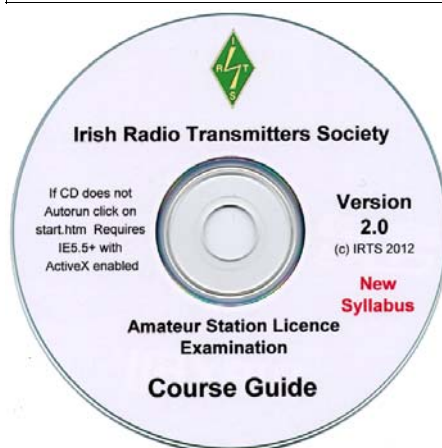
The revised Band Plan for the 6 metre, 4 metre, 2 metre and 70cms bands can be downloaded from the downloads page of the IRTS web site.

Bear in mind that the 4 metre allocation in EI does not cover the full extent of the 70.0 MHz to 70.5 MHz band plan contained in the IARU document; a note showing the EI allocation has been added to the document which is on our downloads page.

Those operating on frequencies above 70cms can see the relevant band plans in the VHF Managers Handbook, which is available on the IARU Region 1 web site.

Again, it is important to note the EI frequency allocations, which can differ from the limits shown on the band plan pages.

[www.irts.ie](http://www.irts.ie)



To get a copy of the CD, send €5.00 to  
Sean Nolan EI7CD,  
12 Little Meadow,  
Pottery Road,  
Dún Laoghaire,  
Co. Dublin

# Outgoing QSL Bureau

## A Report from the Manager

Tony Baldwin EI8JK

I have been running the outgoing QSL bureau for just over 8 years now, long enough to start seeing an interesting trend developing. It is probably no surprise, if you think about it, that the amount of cards sent roughly equates to the sunspot cycle .. if there's no one to work, you won't be sending any cards will you ?

You would also think that the amount of cards lags the sunspot cycle by a year or so, due to those of us that only QSL on receipt of a card and those of us who maybe only write cards once a year. That is where the interesting bit comes in as the recorded sunspot minimum was late 2008 or early 2009, but the QSL card numbers hit it's minimum the year *before* in 2007.

So who were you all working in 2008 ?

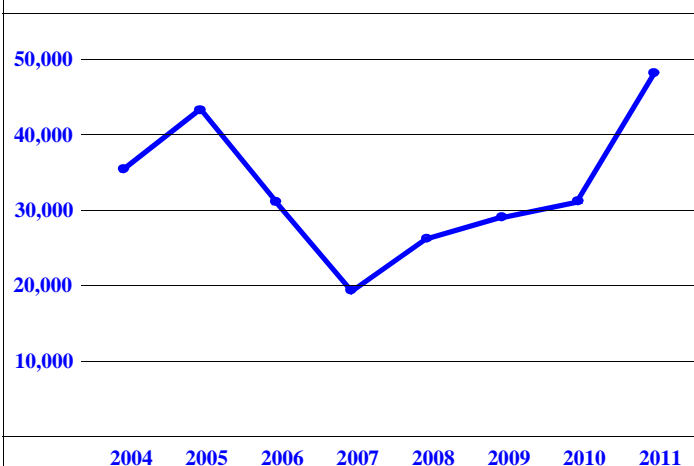
Not surprisingly it was mainly Europeans, but the difference between 2008 and the year before shows some unexpected info. Germany was sent 8kg of cards in 2007 but in 2008 that had risen to 13kg, Russia doubled from 3kg to 6kg and the UK also from 3kg to 6kg.

It's still not an explanation as to why you didn't work these countries in 2007 though, unless you all switched your radios off that year expecting no propagation but then switched them back on in 2008 when the next cycle was forecasted to start, and while the radio was on you worked a few Europeans on the lower bands.

Or maybe it was another reason ....

List of cards sent.

2004	35,700
2005	43,400
2006	31,150
2007	19,600
2008	26,250
2009	29,300
2010	31,150
2011	48,250



The blip in the numbers in 2005 is in part due to the "EI25" event when 11 club stations were active on the 1st of May to celebrate 10 new countries joining the European Union. Together they worked 8,662 stations and I sent just over 6,300 on their behalf, which makes the true 2005 figure nearer to 37,000.

I thought in 2007 that the end was in sight for the EI bureau, numbers were plummeting and that was about the time that the ARRL's Logbook of the World and eQSL were becoming popular, but that seems not to be the case.

It seems that paper QSL cards are still as sought after as ever and if my own personal QSL experience is anything to go by, most stations worked today seem to immediately eQSL and follow it up with a paper one later.

You may like to know where all your cards went in 2011.

Last year the most QSL'd country was Germany, followed by Russia.

List of countries.

20kg	Germany
10kg	Russia,
8kg	UK & Italy
7kg	Spain
6kg	Poland
4kg	Ukraine & Czech Republic
3kg	France, Holland, Belgium & Japan
2.5kg	USA (2 area)
2kg	USA (1 & 3), Croatia, Denmark, Switzerland, Hungary, Bulgaria, Sweden & Finland.
2kg	Ireland, (but included "no buro" and "direct only" returns)

1.5kg	Norway
1.25kg	Bosnia, Belarus, Slovenia, Brasil & Greece,
1kg	Canada, Lithuania, Estonia, Portugal, Austria, Slovakia, Yugoslavia & USA (4, x 4, 5, 6, 7, 8, 9, 0)
500g	Argentina, Australia, Israel, Latvia, Chile, Malta & China
100g	Turkey
50g	Kazakhstan, Macedonia, South Africa & New Zealand,

All the other countries not mentioned were sent very small amounts of less than 20 cards over the course of the year. Many of the rarer countries had no cards at all, in fact 32 countries that have a bureau had no cards sent to them.

The countries that got the least cards were;

5H (Tanzania),	9J (Zambia),
C9 (Mozambique),	FK (New Caledonia),
J2 (Djibuti),	PZ (Surinam),
VP9 (Bermuda)	YS (El Salvador),

all with just one card each last year.

Hopefully this year will be even better and I shall be busy with even more of your cards, but maybe leaving me just a little time to work some of the DX myself.

Cards for the outgoing bureau should be mailed to:

**Anthony Baldwin,  
Rathlin, Dromnea, Kilcrohane, Co. Cork**

If you email Tony on ei8jk@amsat.org  
when you post your cards,  
he will acknowledge their safe arrival.

## Request for Return of Trophies

It is time once again to recall all trophies presented at the 2011 IRTS, AGM in Limerick.

Trophies and Cups can be returned to any IRTS committee member before end of February 2012.

This will allow for engraving to be done and allow for repairs if necessary.

Early return will be appreciated.

Peter EI4HX

ei4hxperimental@eircom.net

## The South Eastern Amateur Radio Group APRS

The South Eastern Amateur Radio Group's APRS node and weather station is back up and running having been off-air for a time due to sensor problems. It is now located at the Waterford City River Rescue HQ which is on the river Suir in Waterford City. The output from it can be viewed on [www.aprs.fi](http://www.aprs.fi), callsign is EI2WCP-2.

Data (including graphs) are also available on the clubs web site at [www.searg.com/weather.php](http://www.searg.com/weather.php).

The club would like to thank Waterford City River Rescue for hosting the equipment.

For latest news from the group, visit [www.searg.com](http://www.searg.com) and you can also follow South Eastern Amateur Radio Group on Facebook and Twitter.

## RSGB Commonwealth Century Club Jubilee Award 2012

The year 2012 is the Diamond Jubilee of Queen Elizabeth II of the United Kingdom.

To qualify for an attractive certificate all you need to do is to work as many different countries and call areas on the Commonwealth Century Club list during 2012.

Certificates will be awarded for working 60 and 100 different call areas.

Use any mode or bands you like and QSL cards are not required. For more details follow [www.beru.org.uk](http://www.beru.org.uk)



All from Mayo at the Coolmine Rally: Dominic EI9JS, Jimmy EI2GCB, Shauna EI 1588, Padraic EI9JA



Sean EI4GK and Clifford EI5FQB



Brian EI9GTB and Don EI6IL at Coolmine





# HF Happenings

with Anthony Murphy EI2KC

Here we go again. It's 2012 and Christmas is well and truly over and the days are starting to lengthen. Since the last issue of Echo Ireland no doubt many of you have been active on the bands, particularly the lower bands which offer much greater promise during the winter months.

It has to be noted that lots of EI stations have been very active during the past number of months. Of course many of the familiar DXers are to be seen spotted on the clusters and heard in the pile-ups, but there are a raft of new callsigns which are plugging away on HF in various modes, including digital modes which have seen quite a lot of interest. And then there are some older calls which have seen a resurgence in activity, which is most welcome.

It is a great pleasure to be able to say that EI operators are, by and large, very well behaved on the bands and very respectable towards their fellow hams during their activities. It is very rare that one encounters any complaint about an Echo India ham, or any QRM caused by an EI, something for us to be proud of.

Conditions have been mixed on HF during the winter time, with very changeable conditions particularly on 12 metres and 10 metres which had been wide open for a good while during the autumn. There were days when these bands were open, and days where they were completely closed. However, openings to the far east and the Pacific continued right through the winter. On one day in December this station worked a number of VK6's, in Western Australia, on 10m phone with about 300 watts into the MA5B minibeam.

## The problem with RFI from consumer electronics

Of course attention was turning towards 80 metres and 160 metres by the time December came around, and some of the late nighters began to chalk up some nice DX on those bands. There was some commentary that perhaps 80 and 160 were not as active at this time compared to other years. There is a widespread problem with RFI from household electronic devices which is ruining the 80m and 160m experience for many hams in urban areas. While there won't be a great pile of EIs working top band from small urban gardens, certainly 80m is well within the reach of many who have modest properties.

A cacophony of noise from plasma TVs, baby monitors, mobile phone and laptop chargers and other devices seems to affect the lower bands much more than the upper frequencies, thus making enjoyable operation on these bands impossible for many an urban ham.

There was a time at this station when a particular plasma TV blanked out 80m and even 40m and caused difficulty on higher bands, but thankfully that TV has since been replaced.

I am aware of one amateur in an urban location using a Carolina Windom who suffers from 59+10dB noise on 80 metres and cannot hear all but the strongest of signals on that band. Without the long experience of other more "mature" hams, I am not in a position to comment about whether activity on 80m has declined, but certainly that is what is being suggested anecdotally, and the main reason cited is RFI from modern electronic devices, many of which did not exist a generation ago when 80m was in its heyday.

Using just a Butternut HF6V, a multiband vertical, I have been able to chalk up a rake of new DXCCs on 80m during December and January, finally hitting the "100 worked" mark on New Year's Day with HH2 Haiti being number 99 and V5 Namibia making it 100. Of course, many of the new ones were worked on CW, where it is easier to hear weak DX signals. And in this regard I would encourage the urban hams to keep plugging away – it really is extraordinary what can be achieved from the small urban plot with modest antennas.

Granted, I now have the benefit of an Acom 1000 linear running up to 400 watts, but the Butternut is hardly the best antenna for 80 metres, particularly because it is located in a corner of the garden and consequently I can only run a few radials from it! The highlight of the winter on 80m came a few days before Christmas when I worked ZL3NB, Bill in Christchurch, on CW. He had just worked another EI immediately before me, and later commented in an email: "Thanks for the QSO and what a rare occasion to work two Irishmen one after the other on 80 meters. Actually that's rare to do that on any band so now feeling lucky and should buy me a Lotto Ticket. Hi"

Those who frequent the bottom end of 80 metres, on CW, will no doubt be familiar with Roy, VA2GU. Roy is a very well known ham simply because of his incredible antenna installations which he has developed purely for 80m, and up until recently, only for CW. For instance, one of his latest installations is a SIX ELEMENT 80m Closed Vertical Array pointing to the Far East and Oceania. Roy has an incredible location, situated on a hill in the middle of a forest overlooking the Gulf of Laurence. As he says himself, "it is salt water here, all the way to the European continent".

Even in the worst conditions Roy's signal can be heard from across the ocean. He would be among the very first signals to be heard from North America in the afternoons, long before other VE and W stations begin to be heard. Roy likes to rag chew and is often happy to have a wee chat instead of just exchanging signal reports. There is a huge amount of information and photos about Roy's antenna projects on his QRZ.com page which will no doubt make for very interesting reading, especially for those EIs with lots of land who aspire to bigger things on 80 metres Hi Hi.

## EI80IRTS

As many of you will already know, the Irish Radio Transmitters Society (IRTS) is celebrating its 80<sup>th</sup> anniversary this year. The Dundalk Amateur Radio Society, of which this author is the PRO, will be hosting a dinner to celebrate the event, followed by a radio rally on the weekend of April 21<sup>st</sup>/22<sup>nd</sup> at the Fairways Hotel, Dundalk. Co. Louth.

As part of the celebrations the society will be using the callsign EI80IRTS throughout 2012. No doubt many of you have already worked EI80IRTS on the weekly IRTS news bulletins on HF and VHF. The Dundalk society (EI7DAR) has sponsored a special certificate, available to all amateurs and SWLs, for contacts with the EI80IRTS callsign during the year. Full details elsewhere in this issue.

*(Continued on page 9)*



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## CQIR

I should also briefly mention the planned CQIR contest to take place on March 17<sup>th</sup>, St. Patrick's Day. This contest has been organised in celebration of the IRTS 80<sup>th</sup> Anniversary and the "Irish" amateur radio community worldwide. It's where the Irish, at home and abroad, work the world and have fun on the air. It is an "everyone works everyone" event on the five contest bands from 10 to 80 metres. For details of this fun contest and what section you can enter, see full details on the IRTS website at [www.irts.ie](http://www.irts.ie)



## Propagation and band conditions

A brief mention of propagation and conditions which we have touched upon already. Obviously the sunspot cycle has been on a severe upswing since the summer of 2011, having been asleep during one of the longest lulls of the past century. This has been great news for amateurs. Those of us who were licenced any time in the past seven or eight years had no great appreciation of what a good opening on 10 metres sounded like! Last Autumn 10 metres opened and remained wide open for DX to Asia and the Pacific often for days on end. Many of us put swathes of new DX into the log on this band, and also 12 metres. Those openings continued on and off through the winter, although with the onset of the short days and dark evenings the bands were closing much earlier. And indeed there were plenty of days when no DX could be heard at all. Such is the joy of amateur radio! An operator using just an Antron 99 and 50 watts might easily have worked DXCC on 10m in the space of a month of six weeks, such were the spectacular conditions.

And it is worth remembering that the current sunspot cycle is not due to peak until mid 2013, so there is every possibility that we will encounter even better openings than last year, although apparently the lift reaches the stage where the band becomes so crowded that it can be difficult to copy a signal through the QRM. But let's not jump the gun. We shall wait with bated breath for the summer of 2012 and the possibilities.

With the increased solar activity come some difficulties. There has been an increase in the number of solar flares. One recent flare brought aurora borealis to the skies of Ireland, although not all of us were able to enjoy the show due to cloud. This aurora activity has the effect of dampening HF, sometimes blanking out all or most of the signals. Those are the times when one should switch off the HF rig and turn on 2 metres Hi Hi.

All in all it has been a good winter. Anecdotal information would suggest that 160 metres has not been as good as recent winters, but this is a band which perhaps is better to leave to someone with experience to explain.

An indication of the broadly good band conditions is given by the number of bands upon which EI amateurs have been working the DXpeditions. Whereas in 2009 and 2010 many of these expeditions were being missed on 12m and 10m because conditions were not there, it is now possible for any decently

equipped station to work DX on all of the bands, and this has been the case through winter time, when many EI ops worked DXpeditions on every band from 80m through 10m

## Recent DXpeditions

V31NB – Belize

5B4AIF, Norman Banks, whose voice is familiar to many hams, activated Belize during December and, perhaps unsurprisingly, encountered some hefty pile-ups. Norman is a big contender in Cyprus and anyone who has done even the lightest amount of contest activity will recognise his voice on the air. He is an all-round great guy for the hobby, someone whose callsign and names rolls of the tongue in any discussion about the major international figures of our hobby. He gave a total of 37 Irish operators the chance to get V31NB into the log, and presumably many stations, like this one, were chasing new bands and slots. Top of the pile with seven QSOs was Declan EI4GJB, followed by four ops with four QSOs each – EI7JN, EI9FVB, EI4KF and some fellow who gives his call as "Echo India Two Kilo Charlie".

## CY0 – Sable Island

The Sable Island DXpedition was, sadly, cancelled for a second time following difficulties with the "landing strip" on the island, which is effectively no more than a sandy beach! Sable Island is notoriously difficult to get to, mainly because of bad weather conditions in the north Atlantic. The beach upon which operators WA4DAN and AA4VK were scheduled to land became immersed in water, under 20-foot swells, thus rendering a landing impossible. The latest update suggests that another attempt will be made during 2012, after the winter storms have passed. Would it be too much to hope that a CY0 landing will be made in the summer, when the possibility of picking up CY0 on 6 metres (50 MHz) might allow itself? Of course, some of the top band operators are cursing me for even suggesting it, but that's the way the cookie crumbles. It's hard to keep everyone happy all of the time!

## TU2T – Ivory Coast

A team of Italian operators activated TU, Ivory Coast in Africa, in late October and early November, giving many EIs a chance to work this rare entity. It was relatively easy to notch up band slots with this expedition. While there is an online log, there is no Clublog-style league table so it is not easy to say who had the most QSOs, except to say there are lots of happy EI ops who have filled out some slots.

There was a bit of a lull in DXpedition activity during December but this did not prevent a number of interesting DX entities to find their way into the logs of many an Irish DXer. There were some single-op DXpeditions, so-called "holiday style" events where an operator is on holidays and enjoys a bit of radio while on some exotic island or beach somewhere!

Some of the calls to be heard included, but were not limited to: VP2V/N3DXX (British Virgin Islands), ZD8W and ZD8ZZ (Ascension Island), FS/DL2RUM (Saint Martin), PJ2/PA0VDV (Curacao), HR9/WQ7R (Honduras), VP5/W5CW (Turks & Caicos), YS1/HB9KNA (El Salvador), HP1/IZ6BRN (Panama), CE2/VE7SV (Chile), 3DA0TM (Swaziland), T88XC (Palau), HH2/HB9AMO (Haiti), V5/DK1CE (Namibia), FY/F6CKD (French Guyana) and many others which are too numerous to mention. This last list is probably a

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good indication of the sort of DX that can be picked up over the course of a month or two if one knows when and where to listen and keeps an eye on the cluster spots.

### PJ4C – Bonaire

This DXpedition to the island of Bonaire, one of the Netherlands Antilles off the coast of Venezuela, took place in January. The F6KOP team beat their own RTTY record with a great effort over the last few days of the expedition concentrating on this mode. The event wound up with over 84,000 QSOs, with a total of 62 EIs making it into the log. Well done all. In joint first place with 18 band slots apiece were the "Kilo Charlies", Ark EI9KC and myself. Don EI6IL and Thos EI2JD shared 17 apiece while Malcolm EI8FH had 16.

### C21HA – Nauru

The Pacific Islands have been worked from EI in great numbers in recent times thanks to a great lift in propagation, particularly on the higher bands. This little DXpedition, part of a Hungarian tour of the south Pacific, has had only modest success working Europe as this article is being written. In fact, only two Irish ops have made it into the log thus far, EI0CZ and EI8GS on 40m and 30m CW respectively. Openings on 15, 12 and 10 to EU have not been there, and there has been some noise and even storm damage to antennas. They are there until February 8<sup>th</sup> so perhaps a few more EIs will make it into the log.

Congrats to Brendan and Jim on working this rare one!

### HK0NA – Malpelo

This was one of those big DXpeditions that many DXers were waiting anxiously to come around. As I write this, there is still a week and a half to go, but already there are 84 EI calls in the HK0NA online log on [www.clublog.org](http://www.clublog.org) - fantastic stuff.

Top of the pile is John EI7BA on 19 slots, followed by Don EI6IL on 16, Ark EI9KC on 15, Anthony EI2KC on 14 and Patrick EI8H also on 14. But no doubt by the time you read this there will be many more slots worked.

### VP6T – Pitcairn Island

If any of you have ever read about Mutiny on the HMS Bounty you might know that Pitcairn Island features as the place where Fletcher Christian ends up making his home.

Well a handful of amateurs made it their home recently and activated this rare one for the benefit of the ham radio community around the world.

With the expedition just ended as I write this, there are 32 EI callsigns in the log. Hats off to John EI7BA who has 12 slots, with Trevor EI2GLB on nine, followed by Ark EI9KC and Patrick EI8H on eight apiece and Eoin EI9O on seven. Brilliant performance there, well done, and to all the EI ops who made it into the log.

## Forthcoming DXpeditions

### 3C0 Annobon Island

Operators Elmo/EA5BYP and Javier/EA5KM will once again be active from Annobon Island (AF-039) and Bioko Island

(AF-010, DXCC - Equatorial Guinea) using the callsigns 3C0E and 3C6A, respectively. According to their Web page they arrive at Malabo, Equatorial Guinea, by the middle of February. (dates to be determined). In Malabo, they will purchase all needed provisions as there are no stores on the island of Annobon. A representative of the Ministry will also be travelling with them to Annobon. If they have free time, they will have a active station on the air on CW or SSB and RTTY using the callsign 3C6A from Malabo, Bioko Island, Equatorial Guinea. Then they will travel to Annobon and be active as 3C0E. For more details and updates, watch the Web page at: <http://www.gdgdxc.net/3c0e/index.php>

### FW0/TW0 Wallis & Futuna

As you read this, activity is probably winding up. Laci, HA0NAR, and his wife Susanne, HA0SR, have been active as FW0NAR from Uvea Island (aka Wallis, OC-054, DIFO FW-001, WLOTA 0389, WW Loc. AH16VS) between January 28th and February 20th. Operator Steve, HA0DU, (their third operator) could not make the trip. There are also plans for a week long side trip to Futuna Island (OC-118) as TW0F. Laci will also take part in the ARRL CW Contest. QSL for both FW0NAR and TW0F via Laci HA0NAR. For updates, watch the FW0NAR Blog page at: <http://fw0nar.blogspot.com>

### JX, Jan Mayen

(Limited future activity!). The "DX-World.net" reports: "Recently the Norwegian government declared most of Jan Mayen a Nature Reserve and banned landings and camping on most of the island. This means that tour operators can no longer visit since the main landing area is part of the Reserve. The only places left on the island which could be used as landing and camp sites are in Kvalross-bukta and in Båtvika, in the very extreme (weather-wise) southern part of Jan Mayen. This will mean that most visits to the north part of the island (where previous landings occurred) will soon be impossible. Whilst radio amateur operations may still be possible from these two locations, which are difficult to get to (rough landing, very strong winds with sand storms, no access to any shelters or resources etc), it now appears JX50 was probably the last major expedition to Jan Mayen and may well be for the coming years. It also seems that only professional, licensed staff members at the Olonkin base will be able to activate the island, with that in itself a rare occurrence."

However, Svein, LA9JKA, is expected to be based on the island beginning March 22nd, and is expected to stay until March 2013. No eQSLs, SWL reports are welcome. QSL only direct to: Svein Rabbevag, Brendlia 12, N-6013 Alesund, Norway. Also, see details on QRZ.com for postage info.

### T8, Palau

Operators Kiyoshi/JA0EKI and Kazue/JJ0LUH will be active as T88XH and T88XG between February 26th and March 1st. Activity will be on 160-10 meters using CW, SSB, RTTY, PSK31 and JT65. They will have 1k amp, Yagi and dipole antennas. QSL both callsigns via JA0EKI.

### TO2, Reunion Island

Stephane "Stef", F5UOW, will be once again be active as TO2R from Reunion Island (AF-016) between March 26th and April 9th. QSL via his home callsign.

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## FP, Miquelon

Allan, W6HGF will be operating from Miquelon Island between the 10th and the 20th of February, 2012 with the call FP/W6HGF.

## PZ, Suriname

Redd, AI2N; Ken, N2ZN and David, WJ2O will be in Suriname February 16-21, 2012, where they will be operating with the call PZ5RO.

Well that's all for now folks. I hope you have enjoyed this month's effort, and I encourage you to please get in touch about your DXing and let me know the rare ones you have worked. We'd be delighted to shower you with platitudes on these wonderful pages!

Contributions can be sent to hamradioireland@gmail.com.

Until next time, happy DXing and I hope the bands open nicely for you, no matter where you are or what size station you have.

## Slán go Fóill

Anthony EI2KC

## RAOTA

RAOTA, the Radio Amateur Old Timers Association, is looking for more members and will have a stand at the Lough Erne Rally on Sunday 1 April.

There may also be a RAOTA Gathering.

RAOTA seeks to keep alive the pioneer spirit and traditions of the past in today's amateur radio.

RAOTA's friendly gatherings and nets on the bands, the hundred issues to-date of its quarterly journal, OT News, and RAOTA's other publications amount to an important, historic and technical treasure of amateur radio lore, that remains pertinent today.

RAOTA has over 20 members in GI/MI and about 10 in EI. There must be many more who share RAOTA aims and who would like to share together as members. All are urged to bring others of like mind to meet up at the RAOTA stand.

A side room is booked for a possible local gathering of RAOTA members and prospective members.

For more information visit:-  
[www.raota.org](http://www.raota.org)  
[gi0lec.blogspot.com](http://gi0lec.blogspot.com)

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of the LoTW website



## ARRL & CQ Sign Agreement to Provide ARRL's Logbook of The World Support for CQ's Awards

CQ Communications, Inc. (CQ) and ARRL - the U.S. national association for Amateur Radio, have signed an agreement to begin providing support for CQ-sponsored operating awards by the ARRL's Logbook of the World (LoTW) electronic confirmation system.

The agreement was announced jointly by ARRL Chief Operating Officer Harold Kramer, WJ1B, and CQ Communications President Richard Ross, K2MGA.

CQ's awards will be the first non-ARRL awards supported by LoTW and will be phased in, beginning with the CQ WPX award. Additional CQ awards will follow.

The ARRL's LoTW system, an interactive database recording contacts between radio amateurs was created in 2003 and has been adopted by 47,500 radio "hams" worldwide. It already has records of 400 million contacts and grows weekly.

The target date for beginning LoTW support for WPX is April 1, 2012.

Amateurs will be able to use LoTW logs to generate lists of confirmed contacts to be submitted for WPX credit. Standard LoTW credit fees and CQ award fees will apply.

ARRL Chief Executive Officer David Sumner, K1ZZ, observed that this step gives radio amateurs throughout the world an inexpensive and convenient means of gaining credits toward CQ's popular operating awards. "LoTW has significantly increased interest and participation in the ARRL's DXCC, Worked All States and VUCC awards programs. We anticipate a similarly positive response to the addition of the CQ WPX award. Amateurs will be able to spend more time operating and less time chasing QSL cards."

CQ President Richard Ross, K2MGA, said he is very pleased to be able to move forward with Logbook support for CQ awards. "We have had excellent results with electronic confirmations for several years," he said, "and I am glad that we are now able to begin expanding that convenience to those participants in our award programs who use Logbook of the World. We look forward to a smooth launch for WPX, and to the expansion of LoTW support to include the rest of our award programs as well."

ARRL ([www.arrl.org](http://www.arrl.org)) is the national association for Amateur Radio in the United States and publisher of its membership journal QST.

CQ Communications, Inc. ([www.cqcomm.com](http://www.cqcomm.com)) is publisher of CQ Amateur Radio and several other magazines. There are currently over 700,000 Amateur Radio licensees in the USA and approximately 2.5 million worldwide.

To learn more go to < [www.arrl.org/logbook-of-the-world](http://www.arrl.org/logbook-of-the-world) >.

## Practical Wireless 80th Birthday

Practical Wireless is celebrating its 80th anniversary this year. Rob Mannion G3FXD/EI5IW, Editor of PW, will be on the air from his home QTH with the call-sign GB80PW on the second Thursday of each month, PW publication day, during 2012 on 7 and 14MHz mainly using SSB. and PSK31.

Hours of operation will be from 1000 to 1600 UTC.

The Irish Radio Transmitters Society sends best wishes to Practical Wireless on the occasion of its 80th year of publication.



# An Overview of QRSS operation

## Part 11

By Stephen Wright EI5DD

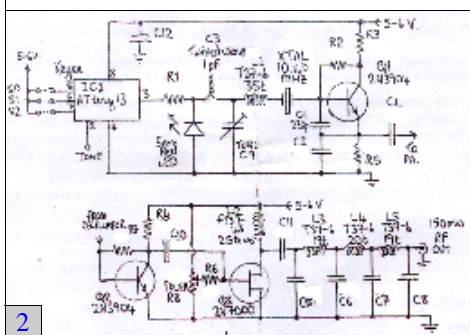
(Part 1 appeared in the October 2011 issue)

### The Transmitter

The QRP Labs QRSS Beacon Kit is available in 3 versions, 80, 40 or 30 metres and costs £10.00 plus postage. This is a quick and easy way to get on air and will not break the bank. There are only 30 components in the kit and the placement of these is determined by the legend on the printed on the board. At the most it should only take one hour to build the project.



**Fig 1** shows the completed project. The transmitter is designed to be powered with 5-6 V DC which could come from a phone charger, 4 x 1.5V batteries in series or a USB power supply from the computer. There are of course many other kits available.



The circuit diagram is shown in **Fig. 2**. The transmitter consists of a simple Colpitts Oscillator, a buffer stage, and Power Amplifier followed by a 7 element low pass filter.

The Atmel micro-controller is pre-programmed with the desired callsign and keys the transmitter. The keyer shifts the oscillator frequency by a few Hz via a red LED which behaves as a varactor diode.

It should be noted that the LED does not light up during the keying cycle. The transmitter will produce 100 – 150mW of continuously keyed FSK CW the key down is 5Hz higher than key up.

After the construction of the board is completed it is just a case of connecting up a dummy load to the output of the P.A. and applying power to set the appropriate drive level. If the drive level is set incorrectly, the power will reduce and the output device will get noticeably hot.

It is important to fine tune the FSK CW with the “gimmick” capacitor, made with two strands of wire twisted together, so that the difference between mark and space is no more than 4-5Hz. Twisting the wires of the gimmick capacitor together more will increase the shift or unwinding will decrease the shift. Too much shift is unnecessary and only uses too much band space. All that remains is to connect to the desired antenna.

The transmitter will be stable if placed in a metal box of some description and protected from extremes of temperature. A small piece of expanded polystyrene around the crystal will also help ensure temperature stability.

After completion, the project was installed in an Altoids tins (what QRP project isn't) and connected to the dummy load and power applied. A good trace was seen on the scope and the output was tuned for maximum power output that, in this case, was 140mW running into a dummy load. A speed of 6 second dits was selected and this was received on the station transceiver. A connection to the computer was established via the Tiger-Tronics interface and, with the ARGO



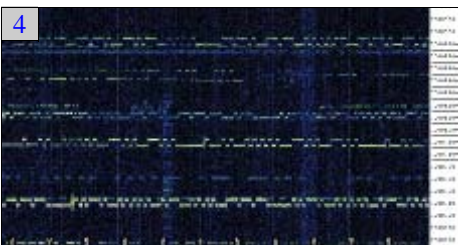
software running, the gimmick capacitor was trimmed to produce a mark space frequency difference of 5Hz (see **Fig 3**). Whilst this was being done the power output was turned down to almost zero so as not to overload the receiver.

### Results:

The QRSS transmitter was connected to an inverted L tuned by an SGC tuner although pre-tuned in this case and the Tx power was applied. Using the online Grabber from ON5EX, which generally produces visible results at most times of the day, nothing was received!

As the evening wore on there was a faint trace but barely readable. This was not consistent with results one would expect so another check on the transmitter was performed.

The power had been turned down whilst the mark space frequency was being set and not turned back up again. In this case there were barely microwatts being transmitted. A quick re-tweak of the drive level and there were now 140mW transmitted. The effect was instantaneous. Three Grabbers in Europe were now receiving a strong signal. The signal was stable and remained on frequency for well over 4 hours before being turned off for the night.



**Fig. 4** shows the EI5DD signal as received by the ON5EX grabber in Belgium at 2300 on the 40 metre band on 7.000790 MHz. As can be seen there are many other signals occupying the band.

The results obtained were quite remarkable considering the antenna is less than satisfactory due to the short length of the back garden. After setting the frequency, there was a short period where the transmitter frequency stabilised after closing the lid of the Altoids tin. It should be noted that when the lid was closed the frequency dropped 30Hz L.F. which is quite a lot on QRSS. With this in mind and a little trial and error the transmitter was finely tuned to a clear frequency. Probably the most impressive part of the exercise was the fact that, with the drive

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level at almost zero, the signal still managed to register on the grabber in Belgium. The stability of this transmitter was also quite impressive although if there were extremes of temperature in the shack slight drift may become apparent.

## Reception of QRSS

For reception of QRSS signals it is essential to utilise a stable receiver. Many signals of 5Hz bandwidth will be received in a window of 100Hz width. A receiver that is prone to drift will probably lose the entire window in the process of warming up. It is necessary to turn off the AGC as the QRSS signal is probably barely above the noise floor of the receiver and signals within the AF and IF pass band will cause the AGC to reduce the receiver gain. Another undesirable trait of some receivers is the effect of inter-modulation distortion within the audio stages of the receiver. Whilst not that noticeable under normal operation, these IMD effects can result in a ghosting effect on received signals. Since QRSS sub-bands are generally no more than 100Hz wide it is quite acceptable to reduce the receiver bandwidth to between 300 – 500 Hz.

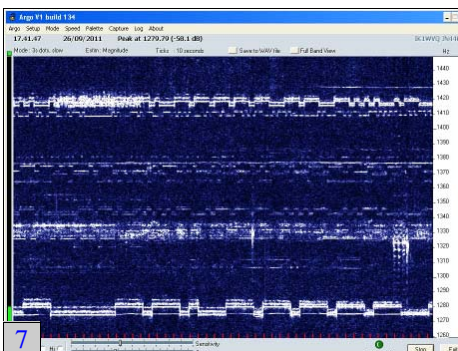
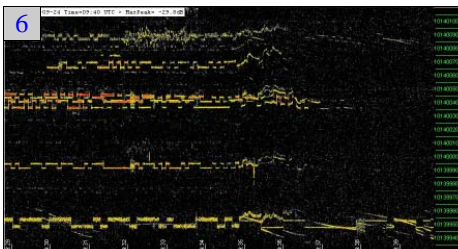
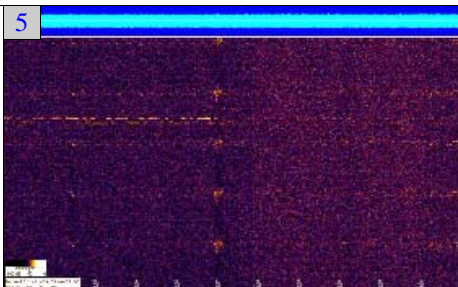
Antennas for QRSS transmission and reception are very much dependant on the area in which they can be erected. A resonant loop antenna will always give excellent results and also low band noise. Broadband active loop antennas tend to increase IMD effects at the receiver due to the high strength of signals that are far removed from the frequency of interest.

## Propagation anomalies.

As the reception of a QRSS signal is from a visual display it is possible to see any anomaly of propagation as it happens. A couple of examples illustrate some dramatic effects.

**Fig 5** shows the reception of a UK QRSS signal by GJ7RWT. The time of sunrise was 6.52 am and within 2 minutes the received signal disappeared as if a switch had been thrown. This illustrates just how quickly the level of D-Layer ionisation can build at sunrise completely absorbing the signals from the UK station.

**Fig 6** shows the reception of signals on 10 MHz. A Doppler shift in the signals occurred prior to a complete fadeout. (note the signal trace appears to skew higher in frequency suggesting a rapid descent of the ionisation layer). This phe-



nomena was reported on a worldwide basis. Each station had a similar report and picture of the event.

**Fig 7** shows multipath distortion following a solar event. Especially noticeable is the multiple traces on the signals at the upper and lower portions of the display.

Many of these phenomena such as Doppler shifts would probably not be experienced audibly due to the fact that the frequency shifts are only a matter of a few Hz.

By posting your information and contact details on the Knights QRSS clipboard it will be possible to receive e-mail reports

on your signal. This is an interesting site as it lists QRSS transmitters and also those who have set up grabbers for receiving QRSS signals. The url for this location is [http://www.on5ex.be/clipboard\\_view\\_unreg.php](http://www.on5ex.be/clipboard_view_unreg.php)

## QRSS frequencies.

137.6 – 137.8  
18432  
3.500, 3.575, 3.579, 3.5999  
7.000, 7.042, 7.0599  
10.140  
14.000, 14.0989,  
21.000  
28.000, 28.188, 28.322  
50.294

The 30 and 40 metre bands seem to be the most popular bands for QRSS operation although any band will give excellent results with the QRSS transmission being a good indicator when conditions are shifting and the band is about to open. It would be easy enough to modify the basic circuit in **Fig. 2** to work on any band.

## In conclusion

QRSS will give a very good indication of the propagation of radio signals for a given time of day over a given path. An improvement of signal strengths on one of the many Grabbers accessible via the internet will give an immediate visual indication in real time.

Some interesting propagation phenomena become apparent after lengthy periods of time monitoring.

The graphical representation makes it possible to detect minor changes in frequency and signal strength not normally possible by ear alone.

As can be seen an early warning of changes in band conditions as they occur is possible using QRSS.



Pictured at the AREN training weekend at Dromineer.  
Mark EI4FNB, Tony EI4DIB, Conor EI4JN, John EI1EM, John EI8IG, Thos EI2JD, Jim EI2HJB.



# ComReg Spectrum Strategy

In April 2011, ComReg published a "Review of the Period 2008-2010 & Proposed Strategy for Managing the Radio Spectrum: 2011-2013" in Document 11/28.

In May 2011, IRTS made a detailed submission in response to this document.

ComReg, having considered all of the submissions received, published its Strategy for Managing the Radio Spectrum 2011-2013 on 22 November last in Document 11/89.

So far as the amateur service is concerned ComReg's strategy for the duration of the plan is

- Considering the allocation of three further channels in the 5 MHz band on a secondary basis, to the amateur service, following consultation with current users of that spectrum;
- Consider an increase in the power permitted on the 10 MHz band after consultation with current users; and
- Implement ECA footnote EU17 in the next revision of the national table of frequency allocations.

The 5 MHz channels concerned are 5300 kHz (allocated in Finland) 5332 and 5348 kHz (allocated in the USA, Norway, Finland and Iceland). The main user of this part of the 5 MHz spectrum is the military.

The increase in power on 10 MHz would be from the present 100 watts (20 dBW) to 400 watts (26 dBW).

The European Common Allocations footnote EU17 states:

*"EU17 In the sub-bands 3400-3410 MHz, 5660-5670 MHz, 10.36-10.37 GHz, 10.45-10.46 GHz the amateur service operates on a secondary basis. In making assignments to other services, CEPT administrations are requested wherever possible to maintain these sub-bands in such a way as to facilitate the reception of amateur emissions with minimal flux densities."*

In its detailed submission on the proposed Spectrum Strategy IRTS sought the three items set out above which hopefully will be concluded during the next two years. We also sought the extension of the 70 MHz band to 70.0-70.5 MHz (70.125-70.450 MHz at present) as well as the upgrading of the segment 50.0-

50.1 MHz to amateur primary. These latter two items have not made it into the strategy for the period up to the end of 2013. We will continue to pursue these issues particularly the extension of the 70 MHz band.

On releasing spectrum in the 2300-2400 MHz band all that is mentioned in the strategy is that it is for consideration following finalisation of CEPT/EU harmonisation. It is stated that considerable interest has been expressed in this band.

The ComReg consultation document 09/49 on this band, some time back, to which IRTS responded, and the subsequent response to the consultation in document 09/76 indicated that amateur secondary status on it will not change and that the bottom 30 MHz, which is important for the amateur service, will be reserved for Dáil TV and the Rural Telephone Service.

On Smart Metering the Strategy document states that the EC's 3<sup>rd</sup> Energy Package, which must be transposed into national law in 2011, requires 80% of houses to have smart meters by 2020. It points out that Power Line Carrier seems to be the technology of choice in Europe while a wireless radio frequency mesh solution appears to be the preferred option in North America. Third party network solutions using GPRS on existing mobile networks are also in use.

It is not clear what communications solution will be adopted for Smart Metering in Ireland. However, our submission indicated that the amateur service, like most users of the HF spectrum, would not wish to see smart metering implemented using power line telecommunications (PLT) devices which have been shown to have the potential to cause significant harmful interference to the HF/VHF spectrum despite the use of notching on certain frequencies. The interference potential also applies to power line adaptors (PLA). A number of technical reports were cited in support of this view. It was also pointed out that there is a need for more stringent requirements to PLT and PLA devices in the matter of power levels (both active and idle), depth of notching over the HF and VHF spectrum as well as radiation from the devices themselves and from associated mains wiring which, being unscreened, acts as an effective radiator of interfering signals.

## South Dublin Radio Club Annual General Meeting

**Tuesday March 13th**

**All members are requested to attend**

## 2012 GI HF Conference and DiGIcon

Following the success of last year's GI HF Conference and DiGIcon, West Tyrone Amateur Radio Club is planning another Conference to be held this year on Saturday 16<sup>th</sup> June 2012.

A few speakers have already been secured for the Conference and we are currently working on the program for the day.

There are still a few slots available and if you feel that you could enhance the program by giving a talk, demonstration or workshop, contact Philip MIØMSO to express your interest.

Contact details are:

mi0mso@yahoo.co.uk  
or 077 9338 6795.

## Canadian Amateur of the Year

The RAC Board of Directors takes great pleasure in announcing the selection of Dr. Cezar Trifu, VE3LYC of Kingston, ON as the Canadian Radio Amateur of the Year for 2011.

Dr. Trifu exemplifies the Canadian Amateur with numerous IOTA DXpeditions since 2008 covering Canadian Islands and recently overseas islands. He has raised the profile of Canadian Amateur operations world-wide with thousands of QSOs with DXCCs covering over six continents.

His dedication to HF operations has been recognized with the DXCC Honor Roll, IOTA Honour Roll, IOTA Gold Level Awards, Canadian Islands Award and US Islands Award to name a short list of numerous awards.

Cezar has also raised the national and international awareness of the Canadian Amateur scene with over twenty multi language articles in several amateur journals.

A presentation will be made to Dr. Trifu in the coming weeks with an article and more on his nomination to appear in the May-June 2012 issue of The Canadian Amateur magazine.



# AX.25 Packet and D-Star data links in Disruption Tolerant Networking

## Part 1

John Ronan, EI7IG: Darren Long, G0HWW: Kristian Walsh: Cathal O'Connor

In the December 2010 Echo Ireland, my fellow authors and I had an article outlining the results of some experiments we made with Delay (or Disruption) Tolerant Networks over both AX.25 (that's packet radio to you and I) and Icom ID-1 based D-Star Radio networks.

### Motivation

Before delving into the gory details, let us remind ourselves why we did these experiments.

Amateur Radio emergency communications networks have used the AX.25 [1] protocol for many years. At its peak, during the late 1980s and early 1990s, the worldwide AX.25 Bulletin Board System (BBS) network moved email and other messages over terrestrial and satellite links (AO-51, GO-32 and others) across long distances, on a store-and-forward network.

Since the growth of the Internet, most of this infrastructure is no longer in place; most of the original AX.25 links have been replaced by fixed-line TCP/IP links between systems. Other AX.25 networks have been replaced over the years by much cheaper IEEE 802.11 (WiFi) point-to-point links.

More recently, however, there has been a resurgence of interest in the AX.25 protocol due to the deployment of the Winlink 2000 [2] system in North America and elsewhere, as Winlink 2000 commonly uses AX.25 connections as the "last mile" between an internet-connected gateway and a radio network. However, there are issues with using Winlink: currently, in the event of a failure anywhere in the chain connecting the radio equipment to the core Winlink network, operator intervention is required to manually reconfigure the client to use an alternate gateway to connect to the Winlink core servers. This need for manual configuration precludes the use of Winlink in ad hoc radio networks, where the links between stations can be established and removed many times during an operation, as vehicles and hand-held stations move in and out of range of each other.

In recent years, the Defence Advanced Research Projects Agency (DARPA) and the Internet Research Task Force have developed an architecture and protocol for what is called "Delay or Disruption Tolerant Networking" (DTN for short).

DTN uses in-network or node-level storage to provide an overlay network on top of a number of different kinds of network infrastructures (see figure 1).

"Node-level storage" simply means that application messages, called "bundles" in the DTN parlance, can be stored at DTN nodes for arbitrary lengths of time (perhaps days) while the waiting for an onward path to become available.

This differs from the Internet Protocol's "store-and-forward" model where the IP packets must either be forwarded to the next node in the network immediately or dropped. In an IP network, the device which sent the message is expected to realise that it wasn't delivered, and then re-send it.

Because DTN operates as an overlay network over any kind of underlying protocol stack, it allows for different transport or

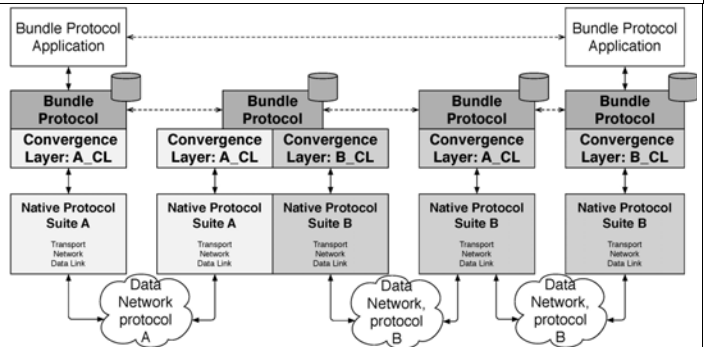


Fig. 1.

DTN network stacks in a Heterogenous Network.

The DTN Bundle Protocol accesses the underlying transport networks using Convergence Layers.

link layer protocols to be used at different points along the end-to-end path. This allows for the selection of underlying stacks which are best suited to, or readily available in, the local environment. In the context of the DTN overlay network, the systems that allow these various network technologies to be used between DTN nodes are termed Convergence Layers. This use of Convergence Layers provides a framework for interconnecting heterogeneous network segments: networks where each link is using different protocols or even different transmission technologies.

Current implementations of DTN support the familiar TCP and UDP protocols, as well as more specialised protocols such as NORM (the Nack Oriented Reliable Multicast protocol) [3] and LTP (the Licklider Transmission Protocol, designed for deep space) [4] for use in traditional IP networks. Certain DTN Convergence layers can also skip the overheads of higher-level protocols like TCP/IP and directly support lower layer protocols such as Bluetooth and serial connections.

In our experiments, we explored the suitability of the existing AX.25 network infrastructure for use as part of a more general ad hoc emergency communications network. To use DTN with an existing technology, a Convergence Layer for that technology is required, so a Convergence Layer for the AX.25 Connected Mode protocol was developed to allow AX.25 nodes to partake in DTN transfers. This Convergence Layer is now part of the DTN2 reference implementation [5].

Before considering AX.25 networks for use as links in a DTN network, it was necessary to evaluate the performance characteristics of AX.25 itself when used as the transport for DTN traffic.

To this end, we examined the throughput of DTN transfers over point-to-point radio links using the AX.25 link layer protocol.

AX.25 links are normally low bandwidth (1200 bits per second is still a common configuration), and so it was essential to determine the overhead incurred by the use of DTN, and how a DTN solution would compare to existing transfer mechanisms. For this reason, tests were also performed using not only the

(Continued on page 16)

(Continued from page 15)

DTN protocol, but also native AX.25 and TCP/IP-over-AX.25 in order to be able to give us a meaningful comparison.

Additionally, we took a look at several DTN Convergence Layers to see how they performed over radio links using Icom ID-1 D-Star transceivers.

## DTN over AX.25

The DTN2 reference implementation is provided as a flexible software framework for experimentation, extension and real-world deployment of Delay Tolerant Networking systems [6]. We took this framework and used it to produce a Convergence Layer for the AX.25 networking protocol.

The AX.25 Connected Mode Convergence Layer (AX.25CM-CL) is a convergence layer implementation for AX.25 sockets on the Linux platform which transports the DTN bundles described by RFC-5050 [7] directly over an AX.25 connection that operates solely as a Layer 2 protocol. In this respect, the AX.25CM-CL is similar to the existing DTN2 Bluetooth CL.

Currently, the only major difference between the AX.25CM-CL and the TCP-CL Protocol is that the AX.25 implementation is extended to include a 32-bit CRC checksum appended to each TCP-CL Protocol segment. This is necessary in order to ensure that any corruption of AX.25 KISS [8] data frames can be detected (In theory, corruption should not happen, but we found that it does in practice.), as well as providing additional means to detect protocol errors introduced by our implementation.

## Limitations & Capabilities

The AX.25CM-CL code has been in active development since January 2007. Currently, the AX.25CM-CL allows point-to-point links between two peers, and also paths containing a single repeater operating at the AX.25 link layer.

At time of writing, no announcement or discovery mechanism had been implemented and therefore links have to be manually configured and initiated.

However, now that the AX.25CM-CL has been accepted into the DTN2 reference implementation, it is hoped that existing DTN announcement and discovery mechanisms could be adapted to work with the AX.25 Protocol.

## Theoretical Performance

In assessing the performance of the DTN implementation, it is useful to consider the theoretical performance limits of the underlying data transport. In this case, that transport is the AX.25 Link Access Protocol for Amateur Packet Radio (AX.25), which is actually derived from the ITU-T X.25 data link protocol [9] with modifications for use by Amateur Radio operators.

For consistency with previous work, the AX.25 channel access parameters of the AX.25 radio link were set as follows:

Bitrate:	1200bps
Slottime:	20ms
Txdelay:	150ms
Txtail:	20ms
Persistence:	63 (0.25)

The size of the test file was 7182 bytes

## Model Transfer times (Warning, science bit!)

AX.25 is most commonly deployed on half-duplex radio links, with link access managed using a p-persist CSMA algorithm [10]. Transfer times on such networks have a small probabilistic component, as a random delay is used for Media Access control (i.e. access to the radio channel). To minimise the effect of collisions on the experimental results, a point-to-point link was used on an unused UHF frequency and the frequency was continually monitored for any other users during the running of all tests.

The probabilistic factor, persistence, was set to 0.25, which entails an average delay of  $0.25 * \text{slottime}$  to each transmission.

The frame transmission time ( $T_{\text{frame}}$ ), in seconds, for one data frame is obtained using the following formula:

$$T_{\text{frame}} = 63/62 * (\text{bits} + 160)/\text{bitrate}$$

where 160 is the number of bits comprising the AX.25 preamble, header, check sequence, and end-of-frame marker.

As in HDLC [11], a zero is inserted after every five consecutive ones in order to make sure that there is no ambiguity about the location of delimiters which have the value 01111110. In 1982 Joong S. Ma showed that such an extra, “stuffed”, bit will occur on average every 62 bits [12].

Each acknowledgement is a single transmission of a frame with no payload. Allowing for transmission setup and release times, the average time required to send an acknowledgement is:

$$T_{\text{ack}} = \text{txdelay} + (63/62) * (160/\text{bitrate}) + \text{txtail} + \text{persistence} * \text{slottime}$$

The number of acknowledgements sent depends on the acknowledgement window size for the link, maxframe: where a maxframe of greater than 1 is chosen, the transmitter is allowed to send multiple data frames in one transmission, which eliminates all but one set of txdelay and txtail delays in each group of maxframe frames, as illustrated in the figure below (b).

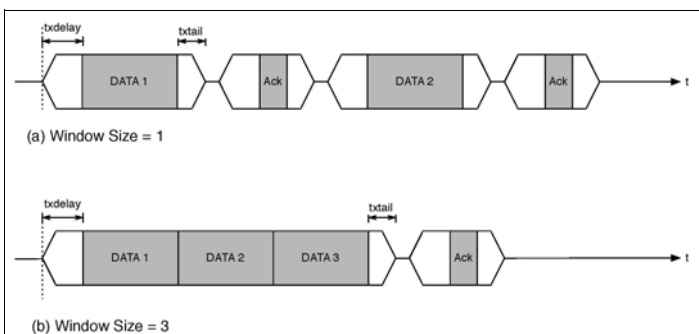


Fig. 2. Effect of increased window sizes on link efficiency.

As each acknowledgement window of data packets is sent in a single transmission, and each such transmission will generate one acknowledgement, the following formula for transmission time of a message containing frames number of data frames can be easily derived:

$$\text{window} = \text{Ceiling}(\text{frames}/\text{window size})$$

Where “Ceiling” is a function that always rounds a real number up to the next largest integer.

$$T_{\text{message}} = \text{frames} * T_{\text{frame}} + \text{windows} * (T_{\text{txdelay}} + T_{\text{txtail}} + \text{persistence} * T_{\text{slot}} + T_{\text{ack}})$$

(Continued on page 17)

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For a window size of 1, each packet requires an acknowledgement, which will negatively affect the throughput of the link. The nature of the physical link used means that these acknowledgement frames incur a very high cost.

Also, as we all know on a radio data link, each transmission, be it a single frame, or a group of frames, must also include an initial period of time, T\_txdelay to allow the transmitter to stabilise before data can be sent. From the figure above it can be seen how increasing the window size can reduce the amount of time required to send data.

Using the channel access parameters from above, we can calculate the frame transmission time for a transfer of N 255-byte frames as follows.

First, the transfer time for a single frame, without link stabilisation or release delays, T\_frame, is determined, as this is constant regardless of the size of the acknowledgment window:

$$T_{\text{frame}} = 63/62 * (((255 * 8) + 160) / 1200)$$

which equates to approximately 1.8629 seconds.

T\_ack, the time required to send an acknowledgement, is also constant for all window sizes:

$$T_{\text{ack}} = T_{\text{txdelay}} + 63/62 * 160/\text{bitrate} + T_{\text{txtail}} + \text{persistence} * T_{\text{slot}}$$

$$= 0.150 + 63/62 * 160/1200 + 0.25 * 0.020$$

which equates to approximately 0.2904 seconds

Using these values, and the formula for T\_message, previously, the following values were obtained.

Window size	timings from model (seconds)
1	68.0
2	61.2
3	58.8
4	57.8
5	56.9
6	56.4
7	56.4

Table 2.

Theoretical Minimum Transfer Times, Raw AX.25 Transfer, 1200bps

Out of curiosity, changing the bit rate to 9600 bits-per-second, and using the formula for T\_message, previously, the following values were obtained. In both of these tables, the values for window sizes of 6 or 7 are identical. This is an purely because our 7182 byte file generates only 5 acknowledgement frames. While this is purely a consequence of our file size, it is representative of what would happen in the real-world.

Window size	timings from model (seconds)
1	17.4
2	12.2
3	10.4
4	9.7
5	8.9
6	8.6
7	8.6

Table 3

Theoretical Minimum Transfer Times, Raw AX.25 Transfer, 9600bps

It should be noted that these figures do not account for collisions, interference or the delay incurred by the transfer of data between the host system and the AX.25 radio modem over the RS-232 serial interfaces.

As these model figures do not take account of these additional overheads or the time required to process higher-level protocol commands for transmission, none of the experimental results were expected to reach this level of performance; the figures here serve primarily to define the performance envelope of the experiment.

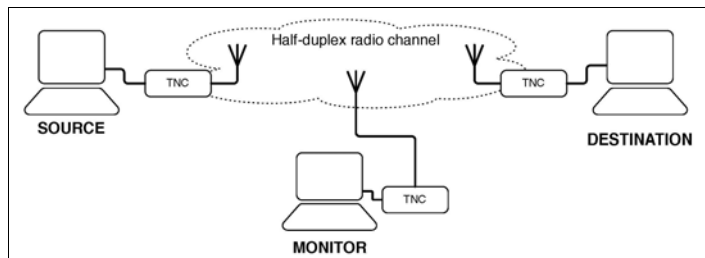


Fig 3. Experimental setup used to measure AX.25 performance. Source and Destination devices were connected via a single RF data channel (i.e. half-duplex)

Equipment used for the source node was a Kenwood TM-D710E with an integrated radio modem. For the destination node, a Kenwood TH-D72E also with an integrated radio modem was used.

The monitor used a Kenwood TH-D7 with integrated radio modem was used to monitor the radio channel to log all transmitted AX.25 frames and allow for the measuring of transfer times. All antennas were in close proximity (less than 10 metres), thus power levels were kept low at 5 Watts or less where possible.

To obtain a valid set of readings, ten transfers of the candidate test file were completed for each setting of the AX.25 window parameter (maxframe). These readings were then combined using a simple average in order to give an indicative time for the given window setting.

When it came to testing using TCP/IP, both TNCs were first configured into KISS mode and then the Maximum Transmission Unit (MTU) and window sizes were set on both Linux hosts, according to the table below, before each transfer commenced.

This was to ensure coherence between the AX.25 and TCP/IP windowing. Transfer of the file data for TCP/IP tests was performed using the FTP protocol.

Window Size	MTU	MSS	Window
1	168	128	256
2	296	256	512
3	424	384	768
4	552	512	1024
5	680	640	1280
6	808	768	1536
7	936	896	1792

Table 4.

TCP/IP test settings. MTU, MSS & TCP window are all in bytes.

For the AX.25CM-CL test, The dtncp utility was used to send the test file. Obviously the ftp, and dtncp applications add their own small amount of overhead to the file transfer (above that already added by AX.25).

However, it was considered to be valid to include this in the final results, as the amount of additional data is quite small in relation to the file being transferred, and will be representative of "real world" usage.

(Continued on page 18)



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That said, for the purposes of generating comparable data, great care was taken to make sure that there were no collisions at the MAC layer, thus removing one unknown.

Consequently, we are confident that the figures obtained are a true and accurate reflection of the performance of the protocols tested in an ideal RF environment.

## Results and Discussion

Window	Model	AX.25-CL	TCP/IP
1	17.4	56.82	71.50
2	12.2	33.82	42.91
3	10.4	25.00	34.10
4	9.7	24.27	30.50
5	8.9	18.64	27.00
6	8.6	16.91	25.27
7	8.6	16.80	26.09

Table 5.

1200bps comparison.  
All transfer times in seconds.

The table above compares the performance of our Model, the AX.25 Convergence Layer and TCP/IP, for different window sizes (with the values in seconds), for transfers between the two TNC devices at 1200 bps.

The table below shows the same results for 9600bps.

Window	Model	AX.25-CL	TCP/IP
1	68.0	110.36	169.18
2	61.2	82.82	114.91
3	58.8	73.64	96.45
4	57.8	70.45	90.36
5	56.9	65.64	88.18
6	56.4	63.73	86.09
7	56.4	64.55	86.82

Table 7.

9600bps comparison.  
All transfer times in seconds.

As was previously mentioned, it was not expected that the actual transfer times would approach those of the model, but the gap here is quite large. One possible explanation is that collisions occurred during transmission, forcing a re-broadcast of certain packets. However, during the experiment, great care was taken to make sure that there were no collisions at the physical layer, so this cause can be eliminated.

The timing model does not account for buffering and host-to-TNC data transfers, and it is conceivable that these are responsible for the observed shortfall in performance. True to its name, the KISS protocol used here favours simple implementation over performance, and is controlled entirely by the host computer.

The discrepancy between model and actual results was inversely proportional to the transmission size, and a simple division of the model-to-experiment error by the number of transmitted groups yielded a strong correlation between number of TX/RX swaps and the additional model delay which can be seen in Table below which was done for 1200bps

Window	TX/RX cycles	Difference	per group
1	29	42.4	1.46
2	15	21.6	1.44
3	10	14.8	1.48
4	8	12.6	1.58
5	6	8.8	1.46
6	5	7.4	1.47
7	5	8.2	1.63

Table 6.

Model vs AX.25CM-CL error, 1200bps. Difference and 'per group' values are in seconds.

The approximate 1.4 second additional "turn-around" time between sending one group of packets and the next may be due to multiple buffering in the chain from transmitter to receiver, slow computation of frame checksums by the devices, interrupt latency, or any number of other factors.

Adapting the model to account for this constant delay would improve its accuracy for this experiment, but there is no guarantee that a different combination of TNC and transmission equipment would exhibit the same intrinsic delays.

### Goodput at 1200 baud

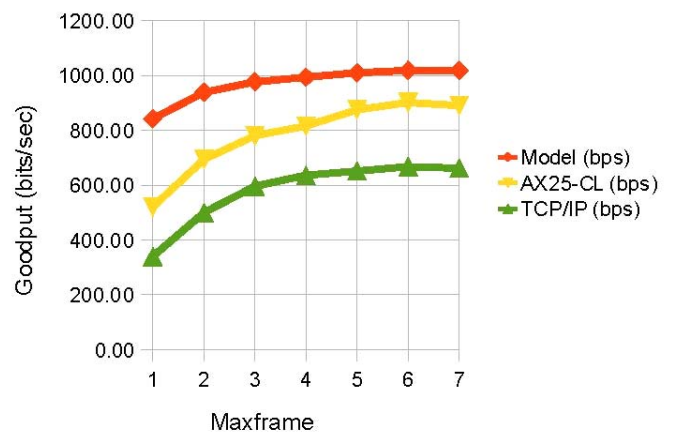


Figure 4.

Comparison of transfer times for AX.25CM-CL and TCP/IP over AX.25 with reference to theoretical model at 1200bps

### Goodput at 9600 baud

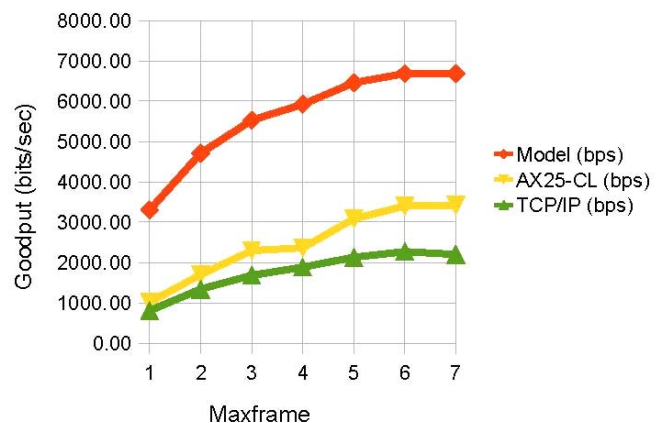


Figure 5.

Comparison of transfer times for AX.25CM-CL and TCP/IP over AX.25 with reference to theoretical model at 9600bps

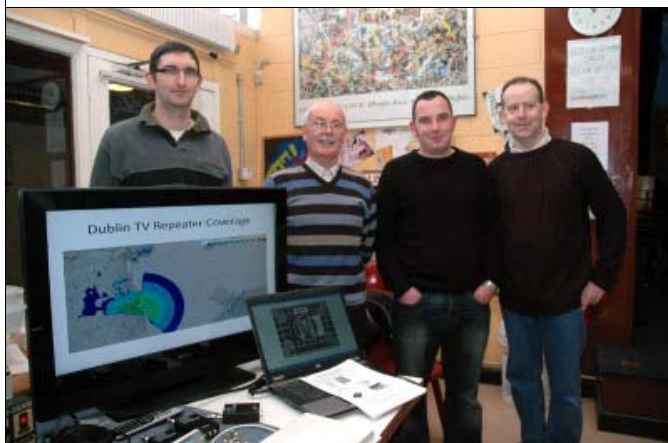
### Possible bug in the TH-D72 Firmware

This issue manifested itself as an occasional "beep" from the TH-D72, with the TH-D72 ceasing transmissions. There seemed to be two different bugs. In the first case, as the TH-D72 attempted to transmit, a "beep" was heard from the radio and the packet sent to the TH-D72 for transmission did not actually get transmitted. After receiving a packet over-the-air, the next transmission went through as normal.

In the second case, the TH-D72 appeared to stop receiving. This resolves itself on the next packet transmitted. During our test runs, any time this happened, we discarded the result and added a further test run at the end.

Part 2 next issue.....

## Dublin TV Repeater Launched at Coolmine Rally



Pictured at the launch of the new Dublin ATV Repeater are South Dublin Radio Club members Daniel EI9FHB, Tom EI7HT, Micheal EI9GGB and Tony EI7GUB

## Shannon Basin Radio Club Annual General Meeting

The AGM of the Shannon Basin Radio Club was held in Roscommon on January 27th last. There was a good attendance and refreshments were plentiful.

The following officers were elected..

Chairman:	Pat EI9HX,
Secretary:	Brian EI8IU,
Treasurers:	Fergus EI6IB & Brian EI8IU
QSL Manager:	Richard EI5GGB.

The club would like to thank the outgoing officers. Several new members attended and are very welcome to the club.

The next meeting will be held in Hannon's Hotel, Roscommon Town on Wednesday 28th March at 20:30.

## South Eastern Amateur Radio Group

The Annual General Meeting of South Eastern Amateur Radio Group will take place on Monday 27 February at 8:00 pm. in the Roanmore GAA Club, Cleaboy Road, Waterford. Members are asked to attend and as always, visitors are welcome.

Please note that membership renewals for 2012 are now due. Membership costs €30.00 and is available at a reduced rate of €20.00 for pensioners, students and the unemployed.

Please pass your payment on to any committee member or you can renew at the AGM on 27 February. Those who paid in November or December are fully paid up for 2012.

For information about the group, visit [www.searg.com](http://www.searg.com) and you can also follow SEARG on Facebook and Twitter.

## Lough Erne ARC in IRTS 80m Contests



These past two years, Lough Erne ARC made strategic use of IRTS 80m Counties Contests in Club revival plans, starting with its 1990-vintage but long-dormant GI0LEC 'Lough Erne Club' license in the 80m Counties Contest at New Year 2010.

For New Year 2011, LEARC used MN0RCF, aptly 'Radio Club Fermanagh', and again in the June 80m Counties Contest, where, with far fewer entries and poor conditions, persistence won a best station outside EI Award. Later, Jamie 2I0MFB had a go at the 2m Counties Contest and won the ex-EI award in the QRP/P section.

The strategy was to enrich our Club with keen new licensed amateurs bonding in real amateur radio activity. Just how well this worked shows in this photo of some of the MN0RCF team in the January 2012 Contest, round the kitchen table of GI6JPO QTH. A cosy place for contesting, in contrast to our Mayo cousins up on a cold Connaught hilltop working EI7MRN/P – and perhaps the contest's only other club station?

Nearest is Raymond, MI0RMD, Assistant Treasurer, then Tommy MI0RVH, LEARC Chairman, both recruited via the February 2010 Foundation course, then Mark MI6CAY and Gabriel MI6WG, December 2011 Foundation (both now studying for Intermediate).

At the back is William 2I0EKN and at the rig Jonathan MI0PPW - both 2010 Foundation. (LEARC courses got 30 Foundation starter licensees in 2010/11)

Results in Contest Corner will show how well or otherwise they did that busy New Year afternoon. The greater importance is the radio fun they had together promoting Club and County.

Three and more years ago, few if any Fermanagh stations featured. Nowadays, Fermanagh features on lots of county contest logs across the 32 counties.

Achievements are good, even better is the companionship of making them together.

Michael MI5MTC,  
Secretary LEARC





## Excerpts from the HX files

### A Look at ATV with Pat Fitzpatrick EI2HX - Excerpt 019

Hello and welcome to Xtract 19 of the HX Files.

**A new 23cms transceiver for the shack.** I would like to talk about this project that was made for use as a base transceiver; this project would be a 60 watt ATV transceiver for 23cms.

The first thing to do was to get a project box that was not just big enough, but structurally strong enough, so with safety hat on, a suitable one was dug out of the stores bunker, as well as a suitable heat sink for the amps.

The heat sink was originally an amp for a mobile phone system that was in the stores bunker for a couple of years. The inside was stripped of its components, some of them for the skip and some for the stores department. The heat sink was found to be only a couple of mm shorter than the project box and it was exactly the same height as it.

The project box purchased was a used piece of scrapped test equipment with most of the original parts removed before sale and after looking at the back of the box and at the heat sink that was going to be used, it was decided to use part of the original back panel (**photo 1**) as this would help with the fitting of the heat sink.



So after a bit of measuring and marking, a small precision cutting device was used to remove the centre of the panel, (a 100mm angle grinder). The rest of the panel was lined up with the heat sink and both marked for drilling some mounting holes. When lining up the panel up with the heat sink for drilling, care had to be taken that the holes to be drilled would be between the fins of the heat sink and there would be no need to remove any of the heat sink.

Thanks to a bit of time spent placing the parts and a bit of measuring, the holes were drilled, they were close, but luckily there was just enough space to add the washers and nuts. The panel was then removed so that there was room to place the 2 amps on the heat sink, a couple of

paper templates were made of the mounting holes of the amps to mark out the spots on the heat sink that were to be drilled. But no matter where the templates were positioned, the holes would be over a fin of the heat sink, so as the heat sink was 8mm thick the holes would be drilled to a depth of 6mm and then be tapped. Thanks to Michael EI5GG for the master class in the use of his pillar drill and taps, and a couple of hours later the job was done. The amps were placed on the heat sink temporarily and were wired up and a few tests carried out making sure they were giving out their full power, and after 1 hour on transmit the heat sink was still cool enough and more than likely it would not be transmitting for that amount of time in one go again.

As the heat sink worked so well during the testing, no fans were to be used in the final design and with that job done the back of the unit was refitted to the box. A chassis for mounting all the various parts that would be used was made from a piece of a scrapped metal that once was the top of an old PC table. This had a couple of benefits as it was the type that had the perforated top, and the holes could be used for mounting the various parts, and it would also aid in air circulation.

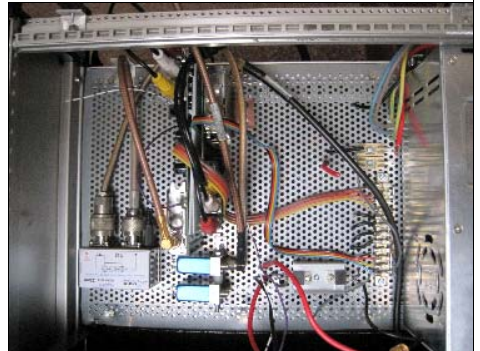
The amp requires a voltage of 24 volts at 4 amps, but the other parts like the 2 watt driver amp, the RX/TX boards, relays and various lights, would only need 12 volts to power them. I was toying with the notion of using 24 and 12 volts from external power supplies. This would not be a problem as the unit would be a base transceiver, but to go portable and having to bring a couple of power supplies was not on, so a 240v AC to 24v DC PSU was fitted into the case (**photo 2**).



As the PSU had two separate lines out for 24 volts, plan A was to use a voltage regulator I had that would drop the 24 volts to 13 volts and it would be able to

handle 6 amps which was more than I needed but I had to go with plan B as I could not find the amp.

So plan B was to use a couple of smaller voltage regulators for each of the TX/RX boards to take the voltage down to the required volts, the regulators were mounted on a small heat sink that would keep them like the Fonzy (cool) (**photo 3 bottom right**).



The power supply used was one mentioned in a previous HX file that was purchased at a rally last year and the fact it also had a fan installed to help with its cooling was not a bad thing. It has a few tapped mounting holes around its body so using a couple of bolts of the same thread and after measuring it, a couple of holes were drilled in the side of the unit and the PSU was bolted to it.



The PSU was placed on its side (**photo 4**) as doing this would leave more room in the box for the other parts.

The TX/ RX boards, preamp, coaxial relay and the other parts were dry fitted in various locations until I was happy with the layout. Another benefit of having a perforated chassis meant I would be able to hide some of the cables, the holes could be made wider with a reamer and you could install grommets in the holes if needed so you would be left with smooth edges and not run the risk of any of the leads chaffing.

The front panel was cut from a piece of an old aluminium sign, the panel would be strong as it is 3mm thick, and the it

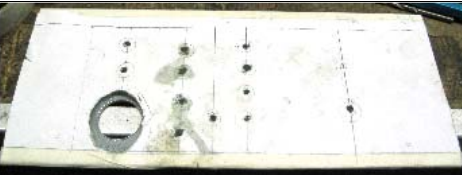
(Continued on page 21)



(Continued from page 20)

would be 312mm wide with a height of 105mm, that's around 12" x 4" in old money.

The metal sign that was to be used for the front panel was not in great condition as it had a few marks and scratches on it, so when all the drilling is finished, some sticky back plastic would be used, as it comes in various colours and finishes. But before all that the first thing to do was to try a couple of designs to see what went where, after the final design was chosen it was held onto the front panel with masking tape (**photo 5**).



The drill points marked with a punch and after a bit of care the holes were drilled first using a 3mm drill bit and then finished off with the right size drill bits, and with the use of a file and a reamer the panel was finished.

The parts were fitted on the panel and then removed to be able to apply the plastic covering. You can see in **photo 6** the finished front panel with all the fittings installed.



Having the back panel free of any fittings would mean that the transceiver could be placed close to the shack wall, and due to the tests carried out earlier, (it not needing any cooling fan(s), and with the carrying handles it would also mean some type of protection for the front panel. As I mentioned earlier, this project would be a base unit, but if I did decide to go /P with it I would need a DC to AC converter to take the 12 volts DC to 240 volts as I would not want to bring a generator.

That's it for this issue of Echo Ireland, and if you would like to see other pictures of the build you can go to my blog, [thexfiles.blogspot.com](http://thexfiles.blogspot.com). Finally, I hope you had a very happy Christmas and that you have a prosperous New Year and may all your signals be P5.

73 de Pat.

## Youngsters On The Air Belgium-The Netherlands 2012



During the summer of 2012 a youth radio camp will be held in Belgium, organised by UBA youth commission and VERON. Location will be close to the Dutch border. During this week many young radio amateurs from 10 different European countries will be participating in different activities such as contesting, ARDF, presentations, field days, visiting radio stations etc.

This week will be organised by members of VERON and UBA.

It will be a great experience for the young hams which they will never forget.

**When:** 19th –26th August 2012.

**Participants:** 10 teams from different European member associations of IARU Region 1.

A team consists of 1 team leader, this could be an older person and 4 team members aged between 18 and 25 years.

**Location:** Eeklo, Belgium.

**Fees:** 30% of travel costs and above this €30.00.

All other costs will be covered by the Youth in Action programme of the European Commission.

Interested amateurs within the age bracket are asked to contact Ger McNamara EI4GXB at [ei4gxb@gmail.com](mailto:ei4gxb@gmail.com) or telephone 087-2532512.

## Three Atlantic Radio History Events

Marconi's pioneering radio contacts from Clifden and elsewhere across the Atlantic began a fascinating history of transatlantic radio and amateur radio.

Another series of the BBC2 Dig WW2 programmes featuring Dan Snow is due shortly. One will feature the wartime RAF Killadeas flying boat base on Lough Erne in Fermanagh. From there in May 1941 two Catalina flying boats flew out over the Donegal corridor to search for the German battleship Bismarck. The story then was that they found her by luck. Today we know that radio and likely amateur radio played the vital part, fixing position by her Morse signals from Gilnahirk in Belfast and other DF stations, and reporting their content for decoding. This may have involved radio amateurs in Ireland including George EI9D in Westport.

Amateur radio historian, Angus Annan MM1CCR recently visited the former RAF Killadeas site to see a restored WW2 Catalina. He will be back in March to give a talk in the SHARE centre about Captain Kurt Carlsen, W2ZXN whose ship was damaged in an Atlantic hurricane. Crew and passengers were rescued but he stayed with her, reporting to the world by amateur radio. She sank in January 1952.

MM1CCR is a member, and his talk is hosted by Lough Erne Amateur Radio Club, with radio amateurs and others interested invited – 7.00 pm Wednesday 7 March.

History might be made by a proposed transatlantic amateur radio beacon on the 2m band that awaits Ofcom license approval. The likely site is in Fermanagh, as far west as is possible within the UK. There has never been transatlantic contact on this band.

Success will be historic and may merit one or more of the IRTS Brendan Awards.

More (and updates) on [www.gi0lec.blogspot.com](http://www.gi0lec.blogspot.com) and/or on [www.learc.eu](http://www.learc.eu)



# Contest Corner

by IRTS Contest Manager Thos Caffrey EI2JD

## Results 80m Counties - January 2012

### A SSB Fixed

		Points	QSO	Counties	QTH
<b>EI80IRTS</b>	<b>IRTS, op Thos EI2JD</b>	<b>10,416</b>	<b>117</b>	<b>28</b>	<b>LOU</b>
EI9HX	Patrick O'Connor	8,910	102	27	ROS
EI7CD	Sean Nolan	8,667	102	27	DUB
EI9FVB	Declan Horan	7,644	90	26	COR
<b>GI8SKN</b>	<b>David Reid</b>	<b>6,996</b>	<b>96</b>	<b>22</b>	<b>ANT</b>
G3RXQ	Stewart Baker	5,824	56	26	ENG
EI7CC	Peter Ball	5,590	62	26	DUB
MI0RRE	Robbie Rantin	5,200	58	25	ARM
EI2KA	Tim McKnight	5,184	66	24	COR
EI6GRB	Jason McGarrigle	5,044	56	26	CLA
MN0RCF	Lough Erne ARC	4,972	70	22	FER
2I0MFB	Jamie McGarrigle	4,968	57	24	FER
GI4AAM	Bill Langtry	4,669	62	23	DOW
EI4CP	Jim Smith	4,608	54	24	WIC
EI6IL	Don Brennan	4,560	50	24	LOU
M0XDX	Paul Dumbleton	3,840	40	24	ENG
GW4EVX	Ron Price	3,784	43	22	GW
EI8BP	Seamus McCague	3,476	44	22	DUB
EI9GIB	Michael Nolan	3,420	51	20	KLK
G6MC	Neil Clarke	3,280	41	20	ENG
EI6CZ	Rolande Hall	3,059	37	23	CLA
EI2CL	Michael McNamara	3,045	37	21	DUB
G8MIA	Andy Malbon	3,036	33	23	ENG
EI4GNB	Tim Hannigan	2,816	38	22	WIC
EI7GEB	David Morgan	2,794	34	22	MEA
EI3KE	Seamus Campbell	2,662	34	22	LOU
EI9GGB	Michael Fitzgerald	2,520	36	20	WEX
GI4SZW	Seamus Keenan	2,124	31	18	ARM
M0DDT	Colin Potter	2,088	29	18	ENG
EI9CJ	Tom McDermott	1,890	27	18	LOU
EI1DG	Paddy McGrath	1,887	30	17	DUB
G6UBM	Les Featherstone	1,344	21	16	ENG
EI6KD	Robert Goryl	1,036	20	14	KLD
MI5MTC	Michael Clarke	1,022	19	14	FER
M1JJK	John Kelly	576	12	12	ENG

### B) SSB Only Portable

<b>EI7MRE/P</b>	<b>Mayo REN</b>	<b>6,760</b>	<b>85</b>	<b>26</b>	<b>MAY</b>
	EI2GCB, EI9JA, EI9JS				

### C) SSB/CW Fixed

<b>EI4GXB</b>	<b>Ger McNamara</b>	<b>10,527</b>	<b>110</b>	<b>29</b>	<b>CLA</b>
EI2CA	Paul Martin	10,503	119	27	MEA
EI9FBB	Dave Deane	9,774	116	27	COR
EI8IU	Brian Canning	8,424	87	27	LEI
EI4CF	Niall Foley	8,381	85	29	GAL
EI2KC	Anthony Murphy	6,372	72	27	LOU
EI9KC	Ark Szpunar	6,256	80	23	KLD
EI7GY	Joe Ryan	4,268	59	22	DUB
<b>G0MTN</b>	<b>Lee Volant</b>	<b>4,032</b>	<b>48</b>	<b>21</b>	<b>ENG</b>
G0VQR	Thomas Canon	1,740	29	15	ENG
G4EBK	George Smith	1,600	25	16	ENG
EI4BZ	Dave Moore	1,380	26	15	COR
GI4FUE	Charlie Morrison	1,020	25	12	ANT
GI4BQI	WJ McCullough	847	23	11	ARM
EI5KF	Gerard Scannell	301	43	7	COR
SM5DQE	Lars Dahlgren	288	9	8	Sweden

### E) SWL

<b>EI1588</b>	<b>Shauna Baynes</b>	<b>336</b>	<b>12</b>	<b>08</b>	<b>MAY</b>
<b>DE3RPC</b>	<b>Timm Andres</b>	<b>100</b>	<b>5</b>	<b>5</b>	<b>DL</b>

### Check Logs

EI's 2GLB/P, 4HX, 5CA, 6GGB, 7JG, 9JO, 9O, G3RSD, GI4DYE, LX1NO, MI6RAX

There was great activity for the IRTS 80m Counties contest last month with QSO's logged from every county except **Carlow, Cavan and Tipp**.

The IRTS Anniversary call sign

**EI80IRTS** took the honours in the SSB Fixed section with Ger EI4GXB just pipping Paul EI2CA to top spot in the SSB/CW Fixed section.

The Mayo REN took the SSP Portable section as EI7MRE/P and Shauna EI1588 took section E) SWL.

Looking at section C) SSB/CW Fixed there was only 24 points separating 1st and 2nd place.

Paul EI2CA had 119 QSO's to Ger's EI4GXB 110 QSO's but the deciding factor was the amount of counties (multipliers) they both had.

The 2 extra counties Ger had logged made the difference.

This shows the importance of searching the band for that extra county.

DXCC entities logged during the contest included:

EI, GI, G, GM, GW, DL, HB9, LX, ON, OH, PA, SM and TF."

It was nice to see a few new operators sending in their logs but it is also noticeable that a few operators did not send in their logs.

PLEASE send in your logs even as check logs to the contest manager, the more logs he gets the more cross checking of logs can be done.

Hope you are all getting ready for some small (or large) participation in the upcoming CQIR contest on St. Patrick's Day.

The HQ station EI80IRTS will be on all the contest bands, so this will be a great opportunity to work the special call and possibly earn the Special Certificate.

All info can be found on here: <http://www.ei7dar.com/ei80irts.html>

Have a go in the contest, it will be great fun!!!

Don't forget then 2m counties contest on Easter Monday April 9th and the Summer 80m Counties Contest on June 24th.

Hope to meet you all in Dundalk for the IRTS AGM weekend on April 21/22nd.

73  
Thos EI2JD

# Islands On The Air Contest 2011

## Results for EI/GI Stations

Position in Category	Call Sign	IOTA Ref	Location	QSOs	Mults	Score
<b>DXpeditions</b>						
<b>IOTA DXpedition, Multi-Operator, Mixed Mode, 24 Hour, High Power (IOTA DXPN MS MIX 24H HP)</b>						
14	MI0UDX	EU122	Rathlin	1,606	261	2,701,350
28	EJ0PL	EU007	Great Blasket	1,098	151	972,138
<b>IOTA DXpedition, Multi-Operator, Mixed Mode, 24 Hour, Low Power (IOTA DXPN MS MIX 24H LP)</b>						
10	EJ3Z	EU121	Inisbofin	935	213	1,382,157
<b>IOTA DXpedition, Single-Operator Unassisted, Mixed Mode, 24 Hour, Low Power (IOTA DXPN SOU MIX 24H LP)</b>						
7	EI/DK2AT/P	EU115	Ireland	253	50	69,750
<b>IOTA DXpedition, Single-Operator Unassisted, CW, 12 Hour, QRP (IOTA DXPN SOU CW 12H QRP)</b>						
2	EJ2KF	EU121	Cape Clear	40	7	1,428
<b>Fixed – Multi-Operator</b>						
<b>IOTA Fixed, Multi-Operator, Mixed Mode, 24 hour, High Power (IOTA FIX MS MIX 24H HP)</b>						
14	EI1DD	EU115	Ireland	1,701	223	1,916,685
15	GI0RQK	EU115	Ireland	1,745	207	1,781,649
<b>IOTA Fixed, Multi-Operator, Mixed Mode, 24 hour, Low Power (IOTA FIX MS MIX 24H LP)</b>						
5	MI0M	EU115	Ireland	774	109	484,614
7	EI8JX	EU115	Ireland	822	80	310,560
<b>Fixed – Single-Operator/Assisted</b>						
<b>IOTA Fixed, Single-Operator Assisted, CW, 12 hour, High Power (IOTA FIX SOA CW 12H HP)</b>						
2	EI7KD	EU115	Ireland	763	66	206,514
<b>IOTA Fixed, Single-Operator Assisted, SSB, 12 hour, Low Power (IOTA FIX SOA SSB 12H LP)</b>						
3	GI4AAM	EU115	Ireland	228	75	141,300
<b>IOTA Fixed, Single-Operator Assisted, CW, 24 hour, Low Power (IOTA FIX SOA CW 24H LP)</b>						
8	EI9ES	EU115	Ireland	52	10	3,000
<b>Fixed – Single-Operator/Unassisted</b>						
<b>IOTA Fixed, Single-Operator Unassisted, SSB, 24 hour, Low Power (IOTA FIX SOU SSB 24H LP)</b>						
1	EI8GQB	EU115	Ireland	885	166	1,040,322
6	EI2KA	EU115	Ireland	270	86	187,308
<b>IOTA Fixed, Single-Operator Unassisted, SSB, 24 hour, High Power (IOTA FIX SOU SSB 24H HP)</b>						
3	EI2JD	EU115	Ireland	762	131	628,014
5	EI7JN	EU115	Ireland	893	89	396,495
<b>IOTA Fixed, Single-Operator Unassisted, Mixed, 24 hour, High Power (IOTA FIX SOU MIX 24H HP)</b>						
2	EI7GY	EU115	Ireland	403	96	257,760
<b>IOTA Fixed, Single-Operator Unassisted, Mixed, 12 hour, Low Power (IOTA FIX SOU MIX 12H LP)</b>						
4	EI5DI	EU115	Ireland	394	79	184,386
<b>IOTA Fixed, Single-Operator Unassisted, SSB, 24 hour, QRP (IOTA FIX SOU SSB 24H QRP)</b>						
1	MI5JYK	EU115	Ireland	183	84	153,972
<b>IOTA Fixed, Single-Operator Unassisted, CW, 12 hour, Low Power (IOTA FIX SOU CW 12H LP)</b>						
19	GI9Q	EU115	Ireland	224	26	25,272
48	GI4BQI	EU115	Ireland	2	3	66
<a href="http://iotacontest.com/contest/iota/2011/finalScore.php">http://iotacontest.com/contest/iota/2011/finalScore.php</a>						



# CQIR - Ireland Calling

## Contest Rules

In 2012 the Irish Radio Transmitters Society (IRTS) celebrates the 80th anniversary of its founding in 1932.

As part of the jubilee celebrations the Society is organising an International Radio Contest, "CQIR - Ireland Calling".

For further information please contact the Contest Manager at [contestmanager@irts.ie](mailto:contestmanager@irts.ie)

### 1 Object:

- 1.1 CQIR celebrates the IRTS 80th Anniversary and the "Irish" amateur radio community worldwide. It's where the Irish, at home and abroad, work the World and have fun on the air.
- 1.2 This is an "everyone works everyone" event on the five contest bands from 10 to 80 metres.

### 2 Date and Contest Period:

- 2.1 From 12:00 UTC Saturday 17th March 2012 to 11:59 UTC Sunday 18th March 2012.  
Note: The contest finishes (is over) at 12:00:00 noon the Sunday. This overlaps with the Russian DX Contest. Log the Russian District.

### 3 Entry Categories:

- 3.1 CQIR is a single-operator event, with two categories.
  1. Single Op Manual
  2. Single Op Assisted, where entrants use any other communications mode or communications technology to find or facilitate QSOs.

Within each Category the following Sections apply.

#### Irish

Single-Op All-Band CW  
Single-Op All-Band SSB  
Single-Op All-Band Mixed (CW/SSB)

#### World

Single-Op All-Band CW  
Single-Op All-Band SSB  
Single-Op All-Band Mixed (CW/SSB)

Giving a total of 12 Sections.

- 3.2 Entrants are "Irish" if:
  - they operate from Ireland, or
  - they were born in Ireland, or
  - of Irish decent, or
  - they want to be "Irish" for the day by sending an Irish County Code
- 3.3 All other entrants are "World" entrants.

### 4 Contest Exchange:

- 4.1 "Irish" entrants send a serial and their county code - the same code for every QSO.  
County codes are listed in Section 10.

- 4.2 World entrants send a serial only.

### 5 Scoring:

- 5.1 CW QSOs - 3 points.  
SSB QSOs - 2 points.
- 5.2 The same station may be worked once per band/mode combination.
- 5.3 Multipliers are each different Irish county code, on each band and on each mode. The maximum is 32 per band for single-mode entrants, and 64 per band for mixed-mode entries.

### 5.4 Penalties:

- 5.4.1 Points may be lost for logging errors.
- 5.4.2 There is no penalty for dupes - they should not be removed from your log.

### 6 Awards:

- 6.1 There will be an Award for the winner of each section.

### 7 Conditions of Entry:

- 7.1 Cross-band and/or cross-mode QSOs are not permitted. QSOs must take place in the recommended IARU band segments for contest operation.
- 7.2 Only one transmitted signal is permitted at any time.
- 7.3 The operator and the station (all equipment and antennas) must be located within a circle of 500 metres diameter.
- 7.4 All entries become the property of IRTS.
- 7.5 Entrants agree to be bound by the provisions and intent of these rules. In any dispute, the decision(s) of IRTS alone shall be final.

### 8 Submission:

- 8.1 Logs should be emailed, as attached uncompressed files, to [cqirlogs@irts.ie](mailto:cqirlogs@irts.ie) by 15th April 2012, named YOURCALL.LOG where YOURCALL is the entrant's call used during the contest.
- 8.2 All QSO records in your logs must conform to the Cabrillo specifications in Section 9 of these Rules - based on the specifications for the RSGB IOTA Contest at <http://www.kkn.net/~trey/cabrillo/qso-template.html>.

Use any logging software you like but if your logging software does not support this format, you must reformat your log accordingly, otherwise it will be treated as a checklog.

- 8.3 Paper logs will not be accepted.

### 9 Cabrillo Specifications:

Note: - Although there is no requirement in CQIR to exchange signal reports on-air, they should be included in your Cabrillo log.

*(Continued on page 25)*

(Continued from page 24)

### 9.1 "Irish" Entrants - send Serial & County:

QSO: 21222 PH 2007-09-29 1302 GI4FUE 59 001 ANT  
EI2JD 59 031 LOU  
QSO: 21022 CW 2007-09-29 1759 GI4FUE 599 204 ANT  
HA1AG 599 302 ---  
QSO: 7012 CW 2007-09-30 0911 GI4FUE 599 1316 ANT  
W3LPL 599 1922 COR

### 9.2 World Entrant - send Serial:

QSO: 21222 PH 2007-09-29 1759 HA1AG 59 302 ---  
EI6JK 59 001 ROS  
QSO: 21022 CW 2007-09-30 0359 HA1AG 599 848 ---  
W3LPL 599 1922 COR  
QSO: 7012 CW 2007-09-30 0806 HA1AG 599 1026 ---  
UA0QL 599 117 ---

### 10 Ireland - County Codes:

ANT	Antrim	LEI	Leitrim
ARM	Armagh	LIM	Limerick
CAR	Carlow	LON	Longford
CAV	Cavan	LOU	Louth
CLA	Clare	MAY	Mayo
COR	Cork	MEA	Meath
DER	Derry/Londonderry	MON	Monaghan
DON	Donegal	OFF	Offaly
DOW	Down	ROS	Roscommon
DUB	Dublin	SLI	Sligo
FER	Fermanagh	TIP	Tipperary
GAL	Galway	TYR	Tyrone
KER	Kerry	WAT	Waterford
KLD	Kildare	WES	Westmeath
KLK	Kilkenny	WEX	Wexford
LAO	Laois	WIC	Wicklow

Inquiries to the Contest Manager at [contestmanager@irts.ie](mailto:contestmanager@irts.ie)

## Craggy Island DXpedition Group

Some members of the Galway VHF Group have joined together to form the "Craggy Island DXpedition Group". This group will be active over the next year with operation from offshore Islands and places of interest.

Over the last year, equipment has been gathered to make these expeditions possible. Certain members of the group will have spare time on their hands making it possible to indulge in more frequent activity.

The group will be mainly active on HF but there will be occasional excursions to VHF and upwards should the need arise. If there should be a need for two stations to be operated simultaneously, the Galway VHF Group Callsign EI4ALE will be used as well.

Operation from Islands will count towards the WAI awards and the areas will be given. At present there is an application for an appropriate callsign from ComReg.

Hopefully the weather will be more favourable for portable operation over the next year!

## Galway VHF Group

Recent meetings of the Galway VHF Group have been dedicated to the demonstration and practical use of test equipment in the Ham Shack.

At the last meeting, the R.F. Signal Generator, Sinadder, and Power meter, were used to tune up ex PMR transceivers on the VHF amateur bands. The use of the Sinadder made it possible to peak the receivers of these sets to maximum sensitivity in a matter of a few minutes.

The next meeting will cover the use of an Oscilloscope and Sweep Generator with a few circuits for demonstration purposes.

Over the winter months, many of the members of the Galway VHF Group have been spending the long winter evenings at the workbench building HF QRP transceivers, VHF transceivers and receiver projects.

Many of these have been completed and have become topics for discussion at meetings.

The coming year promises to be busy from an AREN point of view, with 7 operations already in the pipeline which include rowing, cycling, marathon and walking events.

## Classes

Classes for the Amateur Radio Licence examination are on offer to anyone in the Galway area. If there are enough takers, a formal class will be set up.

If there are only one or two it will be possible to give tuition on a one to one basis.

There is also a CD based course available for study or revision purposes.

Contact Steve, EI5DD at [ei5dd.steve@gmail.com](mailto:ei5dd.steve@gmail.com) or 087-2451218 for further information.

Check out the Galway VHF Group website [www.galwayvhfgroup.com](http://www.galwayvhfgroup.com) for news and information.



**Jamie 2I0MFB working in the 80m IRTS counties contest with his sister Gemma MI6GDM keeping the log.**

# EI's on EQSL

(as at February 1st 2012)

Updates and enquiries to Thos EI2JD at [thoscaffrey@hotmail.com](mailto:thoscaffrey@hotmail.com)

DXCC Confirmed		55	EI5HE	Worked All Zones
235	EI7BA (+2)	55	EI6CPB	40 EI0CZ
194	EI9O (+24)	55	EI6GGB	40 EI4CF
193	EI9FBB (+2)	54	EI7IQ	40 EI7BA
188	EI3IO	54	EI8BLB	40 EI7JN
183	EI7CC (+6)	52	EI4GMB	40 EI9JU
182	EI4CF (+5)	52	EI8H	40 EI9FBB
181	EI2JD (+5)	51	EI/DK2AT (+2)	40 EI9O
165	EI0CZ	51	EI3CTB (New)	39 EI2JD
154	EI7JN (+14)	50	EI6AK	39 EI3IO
148	EI9HX	50	EI8JW	39 EI8GS
147	EI6IZ	49	EI1429	39 EI9HX
147	EI8GS (+15)	49	EI2FSB	38 EI1DG (+1)
146	EI1DG (+7)	47	EI3EBB	38 EI7JZ
142	EI9FVB (+19)	47	EI9GTB	37 EI3GYB
139	EI2KC (+18)	46	EI9GWB (+9)	37 EI4KE (New)
139	EI6AL (+11)	44	EI3GD (New)	37 EI7CC
130	EI9JU	44	EI5DD (+10)	36 EI2KC
126	EI9KC (+83)	43	EI4DIB	36 EI6JK
125	EI2GLB (+16)	43	EI7IS	35 EI2GLB (+4)
117	EI6HB	42	EI5IX	35 EI4GNB
116	EI7JK (+2)	41	EI4IR	34 EI5IF
115	EI3GYB	41	EI1KARG	34 EI8FH
114	EI4BZ (+7)	39	EI1509 (+3)	34 EI9FVB
109	EI4HH (+23)	39	EI4HX	33 EI5GM
109	EI5IF	39	EI6IF	33 EI6AL
109	EI8FH	39	EI7GM	32 EI0W
108	EI8IQ (+13)	38	EI5GB	32 EI3HA (+2)
108	EI9HQ (+6)	35	EI1571	32 EI4BZ
107	EI0W	35	EI7GEB (New)	31 EI5GJB
107	EI4GNB (+3)	32	EI90GPO	31 EI6IL
105	EI3HA (+9)	31	EI7GBB (New)	30 EI4GXB
105	EI7JZ (+12)	30	EI7CHB	30 EI5GJB (New)
105	EI7DAR	29	EI7GZB	30 EI5GSB (New)
105	EI8IU	28	EI4IN	
104	EI4GXB	27	EI3GDB	Worked Prefixes
103	EI5GM	26	EI3FFB	1,482 EI4CF (+49)
103	EI5GSB (+15)			1,242 EI2JD (+33)
102	EI6JK			1,203 EI7CC (+110)
101	EI2II (+15)	50	EI1DG (+1)	1,158 EI9JU (+84)
99	EI5GJB (-1)	50	EI2JD	1,135 EI8GS (+79)
96	EI6IL	50	EI4CF	1,132 EI6JK (+62)
96	EI9CF (+25)	50	EI8GS	1,103 EI9FBB (+30)
88	EI7IX (+1)	50	EI9FBB	1,051 EI7JN (+102)
87	EI4HQ	50	EI9HX	1,033 EI0W (+19)
87	EI7GSB (+9)	50	EI9JU	1,008 EI0CZ (+47)
86	EI5GUB	50	EI9O	936 EI4GXB (+87)
86	EI9ES	49	EI7JN	917 EI3IO (+13)
77	EI7BFB (+6)	49	EI9HQ	901 EI9HQ (+16)
76	EI3KE (+18)	48	EI4GXB	832 EI7JK (+73)
76	EI8JR	48	EI6HB	829 EI7BA (+22)
74	EI4KE (+17)	48	EI6JK	827 EI1DG (+102)
74	EI5EV (+7)	47	EI3IO	780 EI2KC (+120)
74	EI8DL	46	EI0W	772 EI4BZ (+118)
73	EI8HL	46	EI2GLB (New)	731 EI6AL (New)
73	EI9EW (+4)	45	EI0CZ	727 EI8FH (+148)
71	EI3IS	45	EI4BZ	719 EI9FVB (+44)
70	EI6GF (NEW)	45	EI4IS	673 EI2GLB (+92)
70	EI8JK (+13)	45	EI5GM	657 EI4GNB (+53)
69	EI8GP	45	EI7BA	656 EI2II (+141)
68	EI/DH0GSU/p	45	EI8GP	637 EI9O (+59)
68	EI8JB	45	EI9KC (New)	599 EI5IF (+30)
66	EI7IM	41	EI4GNB	593 EI7GSB (+126)
65	EI6ARB (+2)	41	EI5IF	580 EI9KC (+194)
65	EI7M	40	EI7CC	571 EI5GM (+11)
65	EI8DD	40	EI9HW	550 EI9JM (+128)
64	EI4GAB (New)	37	EI2KC	544 EI8JB (+32)
64	EI5HV (+20)	34	EI7GSB	524 EI5GJB (+27)
64	EI9FV	31	EI4GMB	503 EI8IQ (+95)
62	EI3JB	30	EI9ES	475 EI5GSB (+90)
61	EI4IS	29	EI9FVB	469 EI8IU (+22)
61	EI9JM	26	EI6AL	444 EI7JZ (+83)
58	EI9JF	26	EI9JM	429 EI0PL (New)
56	EI7BMB	22	EI6IL	406 EI4GAB (New)

# EI DXCC Listings

(as at February 1st 2012)

DXCC Challenge		213	EI7GL	20m
2,649	EI7BA (+46)	200	EI6IL	335 EI7BA (+1)
1,914	EI9FBB	191	EI4BZ (+6)	314 EI6FR (+8)
1,798	EI3IO	188	EI2CH	280 EI9FBB
1,643	EI6FR (+121)	186	EI7II	247 EI3IO
1,610	EI7CC	178	EI3HA (New)	234 EI2JD
1,504	EI2JD	177	EI9FE	217 EI9JF
1,325	EI6IZ (+152)	171	EI4HH	201 EI8GS
1,018	EI9JF	169	EI8IU (+3)	193 EI6IZ
		162	EI9E	186 EI4BZ (+2)
		142	EI6HB	171 EI7JN (New)
		138	EI2GLB	161 EI9FVB
		131	EI7JZ (New)	156 EI1DG
		131	EI5GSB (+11)	134 EI6HB
		129	EI9HQ	131 EI9E
		114	EI4EX	122 EI8IU (+4)
		105	EI1CS	121 EI3HA (New)
		101	EI3IP	119 EI3GV
				105 EI9HQ
				104 EI7GY (New)
				102 EI2GLB
				102 EI5GSB (New)
Phone		CW		
335	EI7CC/349	331	EI7BA (+1)	17m
332	EI6S/348	321	EI7CC	325 EI7BA (+2)
332	EI8EM/339	300	EI6FR (+12)	249 EI9FBB
332	EI7BA/336 (New)	267	EI9FBB	213 EI6FR (+21)
		261	EI6IZ	161 EI2JD
		253	EI9JF	155 EI6IZ
		252	EI2JD	146 EI9JF
		237	EI4BZ (+1)	121 EI3IO
		205	EI8FH	117 EI8IU (+2)
		188	EI8IU (+3)	104 EI6AL
		166	EI1DG	101 EI3GV
		166	EI5GM	
		159	EI6AL	15m
		155	EI7GY (+15)	313 EI7BA (+8)
		127	EI9CF (New)	260 EI6FR (+23)
		109	EI2IH	229 EI9FBB
		109	EI4HM	202 EI2JD
		107	EI/GM4ARJ	193 EI3IO
				187 EI4BZ (+3)
				180 EI8GS
				152 EI6IZ
				142 EI9E
				124 EI9FVB
				118 EI6HB
				110 EI3GV
				109 EI7JN (New)
				108 EI8IU (+2)
				106 EI1DG
				105 EI9JF
				100 EI2GLB
				12m
				285 EI7BA (+10)
				172 EI9FBB
				106 EI2JD
				100 EI3IO
				100 EI6FR (New)
				10m
				279 EI7BA (+10)
				253 EI3IO
				181 EI6FR (+20)
				169 EI4BZ (+1)
				161 EI2JD
				157 EI9FBB
				151 EI8GS
				144 EI7GL
				128 EI4GK
				111 EI9CJ
				109 EI9E
				103 EI3GV
				6m
				160 EI3IO
				111 EI7GL
				106 EI2JD
				102 EI9FBB
				101 EI3EBB
				2m
				110 EI4DQ
				See <a href="http://www.arrl.org/dxcc">www.arrl.org/dxcc</a>



# **EI DXCC Participants League Table February 1st 2012**

1	EI7BA	100.0
2	EI9FBB	62.7
3	EI6FR	60.3
4	EI3IO	52.2
5	EI2JD	52.0
6	EI6IZ	36.6
7	EI7CC	35.0
8	EI9JF	32.6
9	EI4BZ	31.3
10	EI6S	31.2
11	EI8GS	24.9
12	EI8IU	19.5
13	EI2GS	18.3
14	EI1DG	16.4
15	EI9E	15.8
16	EI3GV	14.1
17	EI7GL	14.0
18	EI9FVB	13.6
19	EI6HB	13.5
20	EI8H	12.5
21	EI8EM	12.4
22	EI2GLB	9.6
23	EI7JN	9.1
24	EI3HA	8.7
25	EI5GM	8.1
26	EI6AL	8.0
27	EI7GY	7.9
28	EI4GK	7.7
29	EI6IL	7.3
30	EI9HQ	6.7
31	EI5GSB	6.6
32	EI4HH	6.2
33	EI8AR	6.0
34	EI2HY	5.4
35	EI9O	5.1
36	EI9CF	4.8
37	EI9CJ	4.7
38	EI2CR	4.7
39	EI7JZ	4.7
40	EI2GX	4.6
41	EI9HX	4.2
42	EI3EBB	4.0
43	EI8FH	3.9
44	EI4GXB	3.5
45	EI2CH	3.4
46	EI7II	3.4
47	EI9FE	3.2
48	EI5GUB	2.3
49	EI8HA	2.2
50	EI2IH	2.1
51	EI4HM	2.1
52	EI/GM4ARJ	2.0
53	EI5IF	1.9
54	EI1CS	1.9
55	EI3IP	1.8
56	EI7JQ	1.8
57	EI8JB	1.8
58	EI4HQ	1.8

DXing has been a major part of amateur radio since the earliest days of the hobby and amateurs always compared their results with their peers.

In an effort to establish a performance table for EI DXers, I have arrived at the table on the left. The top score is represented by 100 and all other scores are shown as a percentage of that 100.

This table is based solely on the ARRL DXCC programme and the individual standings published on the ARRL Web Site. No account is taken of Islands On The Air (IOTA) standings, the CQ Magazine Awards programmes, or any other listings.

The same principle of giving the top score 100 and expressing all other scores as a percentage has been followed in calculating standings for the individual scores making up the total. There are nineteen different DXCC award listings used in compiling the table.

These are the DXCC Challenge, Honor Roll Mixed, Phone and CW, DXCC Mixed, Phone and CW, RTTY/Digital, Satellite and the ten individual band listings from 160 to 6m. If anyone is interested in checking the figures, I will gladly send them the excel file used.

As you can see from the scores on the opposite page, our top man John EI7BA has the leading score in 12 of the award listings and he is listed in all categories except 6 metres. This performance gives him a substantial lead at the top of the table and we look forward to monitoring the efforts that are being made to close the gap.

Congratulations to all who are listed and remember that the playing field is not level and not everyone can aspire to making the big scores at the top of the table.

Dave EI4BZ



John EI7BA



Dave EI9FBB



Declan EI6FR



Dave EI3IO



Thos EI2JD

## **Lagan Valley ARS 33rd Annual Radio Rally Saturday, 3rd March 2012**

**Village Centre, 7 Ballynahinch Road,  
Hillsborough, County Down, BT26 6AR**

Grand Raffle on door tickets

Refreshments and Bring & Buy Stall.

Car parking available. Doors open at 1130

Admission Fee: Only £3:00

Information from:

**Jim Henry, G10DVU**

**Telephone 048 9266 2270**

**See [gi0dvu.co.uk/lisburnrally.aspx](http://gi0dvu.co.uk/lisburnrally.aspx)  
or M10BPB, G14LKG both QTHR.**

### **DXCC Band Status (01/02/12)**

		160m	80m	40m	30m	20m	17m	15m	12m	10m	6m
10	EI9FBB										
10	EI3IO										
10	EI2JD										
9	EI7BA										
8	EI6FR										
7	EI6IZ										
6	EI4BZ										
5	EI8GS										
5	EI9JF										
4	EI3GV										
4	EI9E										
3	EI7GL										
3	EI8IU										
2	EI1DG										
2	EI2GLB										
2	EI6HB										
2	EI9CJ										
2	EI7JN										
2	EI9FVB										
1	EI3EBB										
1	EI3HA										
1	EI4GK										
1	EI5GSB										
1	EI6AL										
1	EI6S										
1	EI7GY										
1	EI9HQ										
		160m	80m	40m	30m	20m	17m	15m	12m	10m	6m



# Amateur Radio, Remote Control and the Internet.

## A view by Paul O'Kane EI5DI

Is amateur radio any different from all other radio services, communications modes and technologies? Of course it is, otherwise it wouldn't be called amateur radio. How then, exactly, is it different?

It's different because radio amateurs converse with one another, in what we call QSOs, using amateur-band RF as the communications medium – and we put up with its inherent limitations. If we used any other communications medium or technology we would be called something else, perhaps amateur communicators or simply internet users.

I believe it's widely understood and accepted that amateur-radio QSOs take place between people, not between stations – since those are merely the instruments for transmitting or receiving the necessary RF signals. In the same way, telephone conversations take place between people, and not between handsets or exchanges. When there is something other than RF in the signal path between two (or more) radio amateurs then, however we care to describe it, it must be something other than an amateur-radio QSO.

We are all entitled to do what we like, subject only to the usual constraints, but we are not entitled to do what we like, and call it what we like. Personal considerations such as lack of finance, no space for antennas, restrictive covenants, and local interference have no bearing on this issue. When the ability to have a "QSO" is dependent upon the continued availability of a public communications utility then, by definition, it cannot be an amateur-radio QSO. The fact that the people concerned may be fully-licensed amateurs has no relevance – no magic pixie dust rubs off to somehow transform an internet or GSM-dependent conversation into anything else.

Remote-control enthusiasts find it convenient to ignore this fact. They argue that what they're doing is technically challenging, that it is harder than a "normal QSO", and that, anyway, it is permitted and approved by the regulator – in our case, ComReg.

Here is my response to each of these arguments.

The fact that a remote-control may be technically challenging does not, in itself, qualify it as being relevant – even though it is nominally related to amateur radio. That's because, in this case, it is being pursued for the purpose of removing some RF in the signal path between the people concerned – it serves only to undermine the rationale for a separate amateur radio service.

The argument that a "remote-control QSO" is harder than a conventional, RF-all-the-way QSO is nonsense because the whole purpose of the pursuit is to make it easier to have

"QSOs" – or what the participants fondly imagine to be QSOs.

"Remote-control is permitted under the terms of my licence". This demonstrates, beyond doubt, that our regulators have little or no understanding of the implications of permitting the integration of amateur radio with communications utilities which are largely unregulated – and, in the case of the internet, completely unregulated.

It seems to me there are direct parallels between what is happening now in the world of amateur radio, and what happened in recent years in the financial world. With the approval of regulators concerned, financial institutions were happy to lend money to people who could not afford to repay them. Their argument was that they were insured against default, and so they were – until the insurance companies went bust and dragged down many others (countries, not just companies) with them.

Isn't it the height of folly to give loans to people who can't repay them? Isn't it the height of folly to use the internet or the mobile phone service, and claim it's amateur radio?

If I saw a CBER speaking into a mobile phone or VOIP link then, no matter what was at the other end of that link, I would not accept that what I was seeing or hearing could possibly be CB radio.

The remote-control enthusiasts may ask what all the fuss about – it's only 300km and it's the same DXCC country?

Well, most people think of themselves as reasonable people.

Therefore, by definition, they wouldn't do anything unreasonable or anything that would harm anyone else or give themselves an unfair advantage.

However, "reasonable" is an imprecise concept, since others might consider 3000km to be reasonable. Anyway, distance is irrelevant when you're using a public communications utility. As for the "same DXCC country", the USA is more than 3000km wide – so what does that say about the wisdom of ARRL in permitting this, not to mention the associated devaluation of their DXCC award.

I'm making a fuss because amateur radio cannot be all things to all people. It, amateur radio, has a long history of self-regulation. The internet is unregulated. Once amateur radio becomes indistinguishable from the internet, it will have ceased to exist.

This isn't something that I've just realised – in 1996, at the IARU Region 1 conference in Tel Aviv, IRTS was the only society to vote against a motion encouraging the further integration of amateur radio and the internet.

Turkeys voting for Christmas?

73,  
Paul EI5DI



# **Irish Radio Transmitters Society**

## **80th AGM Weekend**



**Hosted by  
Dundalk Amateur Radio Society**

**Fairways Hotel, Dundalk, Co. Louth**

**Saturday April 21st - IRTS Annual Dinner**  
**at 2000 - Tickets €32.00**

**Sunday April 22nd - Radio Rally**

**Doors open 1100. Admission €5.00**

**Bookings for Dealers' Stands to Thos EI2JD.**

DARS members will be available to help dealers load/unload equipment on Sunday.

**IRTS 80th AGM at 1400**

All paid up IRTS members welcome

**Talk in Saturday & Sunday**

on the 2m DARS Repeater EI2CCR on R3 145.675MHz -

See IRTS Repeater Page for repeater details.

The IRTS 80m News will be read from the Rally at 12 noon.

A demonstration station HF station will be on display for the general public

**[DXCC Card checking available - Bring your cards](#)**

**Dinner Tickets & Rally enquiries to**

**Thos EI2JD on 087-2953256**

**[www.irts.ie](http://www.irts.ie) - [www.ei7dar.com](http://www.ei7dar.com)**

**Fairways Hotel Rates**

**Double Room B&B - €65.00**

**Single Room - €55.00**

**Telephone hotel on 042-932 1500**

Mention Dundalk Amateur Radio Society/IRTS when booking!





## Radio, Electronics and Hobbies Exhibition Sunday 11th March 2012

Radisson Blu Hotel, Ennis Road, Limerick

Doors open 11:00 am; All are Welcome

Admission fee €5



## Long Communications



Atlantic Airventure Stand



International Plastic Modellers' Society  
Shannon Chapter Stand

Bring and Buy Stalls

**PRIZES**

www.limerickradioclub.ie  
e mail: ei4lrc@eircom.net

## Cork Radio Club

Cork Radio Club met in the River Room at the Commons Inn, New Mallow Road in Cork City on Monday February 6th. Computer logging in the shack was the theme of the meeting and some popular logging packages were demonstrated and evaluated.

The next club meeting will be held at Carrigtwohill Community Centre on Tuesday March 13th at 2000.

## Titanic

The special call sign EI100T has been issued for the year 2012 to commemorate the 100th sinking of the Titanic and Cork Radio Club members will operate the station from Cobh throughout the year.

The main Titanic event will happen over the weekend of April 13/14th and everyone is encouraged to visit the special event station in Cobh.

Information on EI100T from Cormac EI4HQ QTHR.

Further information on Cork Radio Club is available from club chairman Jeremy EI5GM on 083-3317710.

## Members Advertisements

### For Sale:

Kenwood TS-2000 HF/VHF/UHF Transceiver, with MC-52DM DTMF microphone, User Manual, boxed, non-smoking environment, immaculate condition. €1050.

LDG Z-817 QRP ATU: €90.

Phone: 086-3574756.

### Wanted: Accessories for Yaesu FT77:

FTV700 Transverter  
FV700DM VFO/memory unit  
Non working considered.  
Chris 087 322 3022 ei9czb@eircom.net

### For Sale:

Sommerkamp FLDX 500 & FRDX 500 separate transmitter and receiver.  
80 to 10m, no WARC bands. 2m receive.  
Offers?  
Hustler 5BTV Trapped HF Vertical.  
80-10m. No WARC Bands. New in Box  
€200.00  
Jim 01-2872908

Members adverts are free  
Send to ei4bz@eircom.net

## Contest Calendar

All Times UTC

### March 2012

03-04	Sat 0000 - Sun 2359	ARRL International DX Contest	SSB
17-18	Sat 1200 - Sun 1159	CQIR Ireland Calling	CW/SSB
17-18	Sat 1200 - Sun 1200	Russian DX Contest	CW/SSB
24-25	Sat 0000 - Sun 2359	CQ WW WPX Contest	SSB

### April 2012

09	Mon 1400 - 1600	IRTS 2m Counties Contest	FM/SSB
14-15	Sat 0700 - Sun 1300	Japan International DX Contest	CW
14-14	Sat 1600 - Sat 1959	EU Sprint Spring	CW
20-21	Sat 2100 - Sun 2100	Holyland DX Contest	ALL
21-21	Sat 1600 - Sat 1959	EU Sprint Spring	SSB

### May 2012

05-06	Sat 2000 - Sun 2000	ARI International DX Contest	CW/SSB/RTTY
12-13	Sat 1200 - Sun 1159	CQ-M International DX Contest	CW/SSB
19-20	Sat 1200 - Sun 1200	The King of Spain Contest	CW
26-27	Sat 0000 - Sun 2359	CQ WW WPX Contest	CW

### June 2012

2/3	Sat 1500 - Sun 1500	IRTS CW Field Day	CW
14/15	Sat 1200 - Sun 1200	IARU HF Championship	CW/SSB
28/29	Sat 1200 - Sun 1200	IOTA Contest	CW/SSB

# JBT Trading Limavady N. Ireland

**We Specialise in supplying New & Used  
Amateur Radio Equipment**



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**Tel: 028 7776 5045**

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**Mob: 07740721770**

**Web: [www.mi0jbt.co.uk](http://www.mi0jbt.co.uk)**

**[www.niradios.co.uk](http://www.niradios.co.uk)**

**Please note: I can still be contacted at [jimbobtraynor@utvinternet.com](mailto:jimbobtraynor@utvinternet.com)**

## **Lough Erne Amateur Radio Club**

### **Annual Rally**

**The Share Holiday Village,  
Lisnaskea, County Fermanagh  
BT92 0EQ**

**Sunday 1st April 2012**

**Bring & Buy, Caravan Park,  
access from Lough Erne/Shannon Waterway  
Food and parking on site.**

**Doors open 1130**

**Further details from Iain: 028 66326693**

**[iain@learc.eu](mailto:iain@learc.eu)**

**<http://www.loughernerradioclub.co.uk/>**

## **Bangor and District ARS Summer Rally.**

**Saturday 7th July 2012  
at 1130**

**Donaghadee  
Community Centre,  
Donaghadee,  
County Down**

**More information on  
[www.bdars.com](http://www.bdars.com)**

**Contact Bill GI4AAM  
for further details:  
Tel: 028 9181 6707**

**Email:  
[bill.langtry@btinternet.com](mailto:bill.langtry@btinternet.com)**

## **Mayo Rally**

**Welcome Inn Hotel  
Castlebar**

**November 18th 2012**



## **Irish Radio Transmitters Society**

**Celebrating 80 Years + 1932 - 2012**

**Amateur Radio in Ireland**



# South East Communications

**Amateur Radio  
Marine VHF  
Shortwave Receivers  
Scanning Receivers  
GPS Systems  
Accessories**



**Gary O'Hanlon,  
Ashbury House,  
Dunmore East,  
Co. Waterford.  
Tel: 051-385853  
087-2513772**

## Used Equipment - All prices for straight sales

Adonis AM-503G. Both Microphones wired for Kenwood .....	€65.00
Alinco DM330MW. 30 Amp Switch Mode Power supply. New .....	€39.00
Alinco DX-SR8E. Latest HF Rig from Alinco. New.....	€699.00
Ameritron 811 HXCE. 800w Amplifier. As new. ....	€899.00
Antron 99 Fibreglass Base Antenna, 10/12m.....	€89.00
AOR SDU 5000. Spectrum Display Unit. As new condition .....	€999.00
BHI DSPKR 10w amplified DSP noise cancelling speaker .....	€35.00
Diamond SX-400 SWR Meter. 2m/70cms. 200w.....	€85.00
ERA Micro Reader MK4. Self contained RTTY & Morse Reader .....	€89.00
Garmin Quest Handheld GPS. Ireland & Europe .....	€99.00
Icom UT-106. DSP Unit for IC-706 etc.....	€75.00
Icom ICR-71E. 0-30MHz. All Mode Classic Receiver .....	€399.00
Icom ICR-7000. 0-2000MHz. All Mode Receiver .....	€599.00
Icom ICR-8500. 0-2000MHz. All Mode communication Receiver ...	€1,199.00
JRC NRDS25. All Mode, top class shortwave receiver.....	€599.00
Kenwood AT-230. 200w Manual ATU .....	€175.00
Kenwood MC-80. Desk mike for all Kenwood radios.....	€79.00
Kenwood R-2000. 0-30MHz with VHF converter fitted .....	€399.00
Kenwood TS-570DGE, HF rig with DSP AUTO ATU.....	€799.00
Kenwood TS-711E. 25w 2m base station .....	€249.00
Kenwood TS-811. 25w 70cm base station.....	€259.00
Kenwood TS-850SAT. 100w transceiver with auto ATU .....	€799.00
Kent Brass Straight Morse Key. Boxed, New.....	€89.00
LDG YT-100. Auto Tuner for 857D .....	€49.00
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